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Big Profits Realized in Hauling Farm Products to City Markets by Motor Truck

Truck Saves Over Six Hours Daily During Marketing Season. Trucks in New Jersey Used to Haul Farm Labor Between Cities and Farms

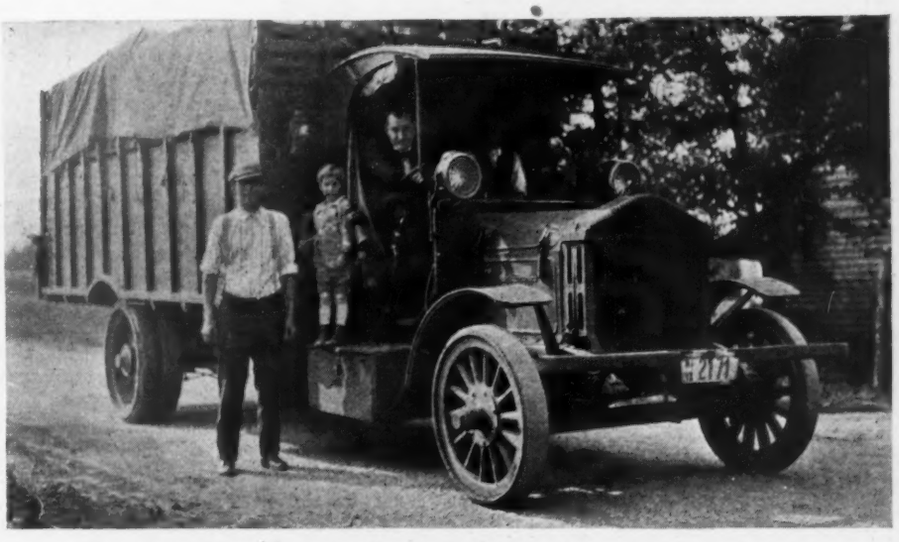
By C. P. SHATTUCK

AGRICULTURAL experts, men having practical as well as theoretical knowledge of farming, have advocated the use of the motor truck for connecting the producer with the city or consumer. They have urged the use of the truck, particularly for transporting perishable fruits and vegetables, stating that it not only made the farmer independent of the railroads and other common carriers, but obtained a better price for the goods, because they are delivered in a much better condition due to the practically store-door method of delivery and because the delays of the common carriers are avoided.

Farmer Turns Truckman

Some farmers have anticipated the possibilities of the truck in replacing the railroad and the horse for long and short hauls and as a result of their progressiveness have fattened their bank accounts. New Jersey affords many examples of farmers utilizing the motor truck to advantage, and among the most striking illustrations of profitable use of commercial cars in Burlington county is the use made of cars by J. N. Brock, in the township of Burlington. Four years ago last May he decided to put in practice his plan of serving as the connecting link between the farmers of his county and the city markets.

Mr. Brock was unusually well qualified for putting over his campaign, which provided for the collection of fruit and produce, hauling it to market on a fixed charge basis and selling on commission.



This Machine Transported Sixty Thousand Baskets of Peaches This Season
One of a fleet of Pierce-Arrow five-ton trucks, used by a large Irvington, N. J., peach grower, on its way to New York City

Shed Side of Barn, Showing Section of Loading Platform, With Workman Bringing in Peaches

To execute such a plan requires a man thoroughly familiar with the various grades of fruits and vegetables, with the niceties of the markets, and it requires salesmanship and a knowledge of conditions to successfully dispose of perishables. The plan also involved obtaining the confidence of the farmer, for being victimized by so many unscrupulous city sharps with fake selling plans, he has adopted a "Missourian" defense.

Putting the Plan in Operation

Mr. Brock was a farmer, was well and favorably known in his community, and when he purchased his first truck, a 1½-ton White, four years ago, some of his more conservative neighbors predicted disaster. Others knew him for a live wire, however, and awaited with interest the starting of the service announced. It proved a success from the start, the farmers realizing that Brock provided a

The Receiving Entrance, With a Small Farmer Unloading Strawberry Tomatoes
Mr. Brock is shown about to receive a basket

safe outlet for their products and that the time formerly wasted in hauling to market with the slow-moving horse could be utilized advantageously on the farm.

Solves Labor Problem

New Jersey farmers have in common with their kin in other states experienced a shortage of labor. Experienced help has flocked to the cities attracted by the high wages in munition plants, and many of the sons have gone to the colors. The shortage has been pronounced during the past year, making every hour worth at least three in normal times, and were it not for the co-operative plan of helping each other out in harvesting, etc., many farmers would have been unable to get their crops ready for the market, let alone haul them to the city. Farmers have resorted to many expedients to solve the harvesting problem. One county agent helped a farmer by hiring a motor truck to transport Italians from the nearby city and carrying them back at night, the farmer paying 80 cents the round trip, in addition to the wages. This illustrates scarcity of trained labor on farm and is one of the many hundreds of instances where the motor truck has bridged the gap.

Saves Six Hours a Day

The conservation of time by farmers served by Brock's motor truck service is six hours a day during the marketing season, which begins with asparagus in May and continues until approximately November, when the root vegetables, such as turnips, beets, potatoes, etc., and apples are marketed. The estimate of time saved is based on that required for a one- or two-horse team to haul from Burlington to Trenton, where the products are marketed, the distance being 18 miles and requiring six hours with the horse. Of course, all of the producers are not 18 miles from Trenton, and some would reach the market in less time, but even if the shorter hauls consumed but four hours, this time could not be taken under the existing labor conditions.

Truck *vs.* the Horse

The supremacy of the truck over the horse is now so well established that comparisons are generally repetition, but in the present case it is interesting to note that previous to the use of the truck Mr. Brock used horses for hauling to the Trenton markets and that a pair of high grade, well cared for animals required six hours one way. Inasmuch as the business required the services of three teams and an extra horse for emergency, and a team could make one trip in twenty-four hours, or travel thirty-six miles in twelve hours, it became evident that with the increasing demand for transportation that the equipment would have to be greatly enlarged.

Mr. Brock, being a shrewd farmer, did a little "casting up of accounts." He figured that his teams (2 horses) cost $650 each, the extra horse in proportion, or approximately $2300. To feed the animals from November 1 to the opening of the marketing season would cost $300 the team. Harnesses, wagons, etc., would have to be purchased if additional equipment was added.

So Mr. Brock decided that a motor truck should be purchased instead of extra horses after a demonstration trip showed that the 1½-ton White could carry 100 per cent greater load and could make the trip to Trenton in one hour and 30 minutes. Mr. Brock sold his horse drawn equipment and avoided a big feed bill that winter. That was four years ago. Since then he has added a 4-ton G. M. C. and a 2-ton Jeffery Quad.

The trucks are kept busy and herein lies the secret of Mr. Brock's success. During the first two weeks' service of the White it made ten trips in a like number of days to New York City with farm products to commission houses, a round trip of 180 miles daily. The machine frequently makes two trips a day to Trenton and extra loads are transported when required. The G. M. C. truck makes double trips and this machine carries 430 baskets of peaches, which number is in excess of half of the average carload.

Hauls Huge Amounts of Peaches

Thousands of baskets and crates of peaches are shipped from Burlington county to Philadelphia and New York City markets. And it is interesting to note that, according to one intimately in touch with shipping conditions, that only ten per cent of the harvest goes by train, the balance being transported by motor truck. During the harvesting season, about July 15 to September 10, a steady stream of trucks could have been noted on the main highways leading to New York and Philadelphia. At one garage on the way to one of these cities it was not uncommon for fuel and oil to be supplied to over 150 trucks nightly. Inasmuch as there are other men pursuing a policy similar to Mr. Brock's, detailed figures as to the products hauled are withheld, but it is stated that he has hauled up to the time this article was compiled, over 50,000 baskets of peaches, peas, tomatoes, beans, etc.

Illustrating Adaptability of Average Farm Barn and Wagon Shed to Use of Motor Truck
The garage was added to the main structure

The trucks have proven a very profitable investment for Mr. Brock, who charges about seven cents a basket for hauling and a commission that amounts to practically ten cents a basket for selling. The earning capacity of the trucks is obvious. He employs from three to four men as drivers and helpers during the marketing season only. He attends to all selling.

With the exception of large loads or shipments the trucks do not collect the products. The farmers bring small lots, generally less than half a truck load, to the receiving platform or building at Mr. Brock's farm. During the afternoon the small farmers, those who do not raise enough products to warrant driving to the city and those who cannot spare the time, can be seen unloading at the platform.

Buildings Easily Converted

A practical shipping room with convenient loading platforms was made of the barn and wagon shed adjoining by constructing an interior platform or floor having two openings, one of which is utilized for receiving and the other for loading the trucks. The former shed or loading place also serves as a garage for the G. M. C. truck. This arrangement was not expensive and greatly facilitates handling large shipments, as two trucks can be loaded at the same time. The height of the platforms conserves labor.

As each farmer drives up and unloads, a tally is kept and a receipt given for the peaches, tomatoes, etc. Mr. Brock makes weekly returns, once a week turning over the receipts of sales, a detailed report, less transportation and commissions.

Delivery of fruits and vegetables is not confined to Trenton and New York as the trucks frequently go to Newark, 80 miles distant, by the route taken. The machines carry capacity loads and make the trip in about six hours. They return after making delivery.

In speaking of the work of the trucks Mr. Brock said that his future cars would be of 2-ton capacity as he finds them best adapted to the work. Although he is said to work 20 hours of the 24 and to obtain his rest while on the road, he is apparently well compensated for his labors, at least he is reported to be "very prosperous" by his neighbors, and farmers generally have a line on their neighbors.

One of the Brock Trucks Being Loaded With Tomatoes and Cantaloupes From a Wagon From the Fields.

Patriotic Duty of Merchant to Help Develop Return-Loads Bureaus

One of the greatest problems of the Return Load movement is the selling of the merchant. Various methods have been utilized, among which is personal solicitation, such as has been employed with success in Rhode Island. In large states, however, the plan would require a large force of workers to put it across, involve considerable expense and take considerable time.

What may be considered a new method in interesting the merchants in the Return Load movement was inaugurated by George H. Pride, member of the Highways Transport Committee and regional director for New York and Connecticut. At a meeting of the Highways Transport Committee of New York, held at Albany, September 25, Mr. Pride invited twenty merchants of the city to be present. To these and members of the committee, executive and field, he forcibly pointed out the failure of those interested in promoting the operation of trucks loaded to capacity both ways to put the plan across as well as the lack of interest of the merchant.

Must Aid Government

Mr. Pride stated that the Government, in working out the plan, helped transportation, also the merchant, and that in facilitating transportation by motor trucks the merchant was greatly helped in having his goods moved to and from him. **"While it is a patriotic movement, it is not obligatory on the part of the Government to ease the transportation situation to help the merchant," said Mr. Pride. "The strength of the individual is the strength of the Government. The Government can't do it all. It is every merchant's duty to help the Government develop the plan, and all efforts of the Government to help the merchant will amount to naught unless the merchant co-operates.**

"The Government has made it possible for the merchant to move and receive his goods and material other than by common carriers, and he must utilize the plan, to keep it going. Self-interest and duty require its utilization, and its strength is that it conserves man power, gasoline, oil, tires, wear and tear of roads and mechanism. Mere transportation to the consumer, one-way haulage, is not accomplishing the purpose of the movement, that of eliminating uselessly empty trucks."

Scores Methods of Bureaus

The methods employed by some bureaus were scored. It was pointed out that some, after giving a load to a truck, considered they had accomplished results and were content to rest on their laurels. It was also stated that the Return Loads movement was not an effort to encourage long hauls needlessly, but was an effort to encourage the use of trucks both ways and where it was necessary to ship on long hauls. By so doing it was a direct saving to the merchant and the country in transportation. The return haul effected a saving because, generally speaking, the charge should be only about 75 per cent of that both ways.

Solid Tires to be Reduced to Fourteen Sizes

As a means to reduce the amount of labor, material and capital used in building solid truck tires, the War Industries Board has ordered that sizes of solid tires be reduced from a range of more than 100 types and sizes to 14 types and sizes within the next two years. The immediate order is to reduce to 40 sizes, and this figure will be lowered to 36 by November 1. After that date there will be a gradual elimination of other types and sizes at specified periods, until the minimum number is attained. Although approximately one-third the total number of truck manufacturers will be affected, the reduction will only affect their smaller models. Practically all truck makers building larger than 2-ton models have adopted tire sizes which fit in with the standardized sizes to be adopted.

Following is the standardized program:

Class A—This is the range of standardized sizes and types which will be continued. It includes hard base pressed-on and all removable types.

32 x 3	36 x 4	40 x 5
32 x 3½	36 x 5	40 x 6
32 x 4	36 x 6	40 x 10
	36 x 7	40 x 12
	36 x 8	40 x 14
	36 x 10	

Class B—This range of sizes, which will be discontinued no later than November 1, 1920, includes hard base pressed-on and all removable types of tires. This list includes:

32 x 2½	34 x 6	36 x 3	38 x 4
			38 x 5
			38 x 6

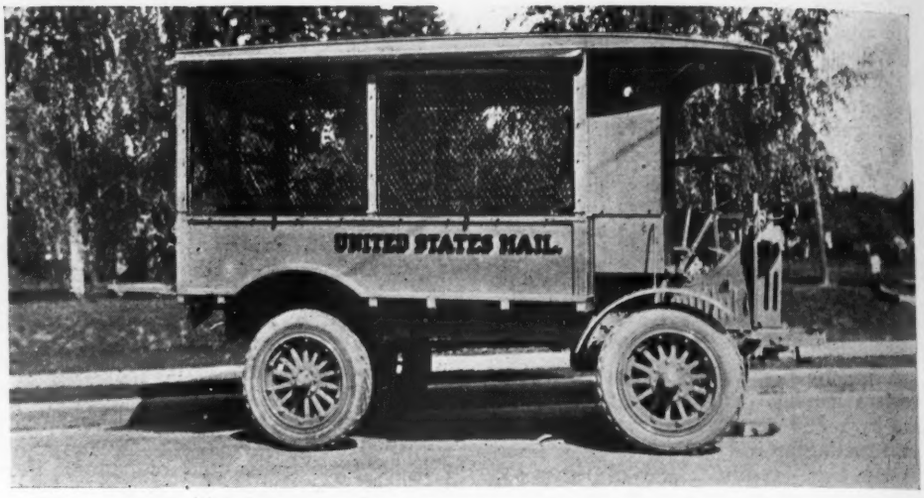
Class D—These sizes, which will be discontinued on November 1, 1918, include hard base pressed-on and all removable types of tires; namely, 42 x 5, 42 x 6. Also 34 x 3½ and 38 x 4½ cushion tires to fit standard clincher rims.

Class E—Will be discontinued at once. It includes all types and sizes of solid tires not specified in the above classes.

New Type of Rural Parcel Post Motor Truck is Placed in Service

Four Trucks Specially Designed and Built for the Post Office Department Are Driven Overland to Washington and Go Into Service Immediately. Embody Many Ingenious Details. Comply With Postal Specifications.

By A. V. COMINGS



FOUR big motor trucks, designed and built by the United States Motor Truck Co., of Cincinnati, to comply with specifications of the Post Office Department, were recently driven overland from the factory to Washington and are now in service on rural parcel post routes. The delivery of these trucks marks an epoch in the rapid strides the government has made in extending its rural motor parcel post routes, for it is the first time in the history of the service that a special truck has been designed and built for this work. It emphasizes the importance which motor truck haulage of mails has assumed in the comparatively short time the department has tried it out.

These new trucks meet the idea of the department that the ideal mail truck shall be close coupled, shall have the engine so placed that there shall be no long hood extending forward from the dash, and shall be capable of sustained high speed. In designing the trucks, Chief Engineer E. C. Shumard and Assistant Chief Engineer E. A. Haskins, of the United States Motor Truck Co., have evolved a truck well worth careful study.

The truck has a wheelbase of 100 in. and overall frame length of 160 in. The frame is of ¼-in. open-hearth steel, the sides being 5 in. deep throughout their length. The ends are of flanged plate of the same dimensions, connected to the sides with angles. The rear end is stiffened by two steel corner braces, ⅜ in. by 3½ in. The extreme width of the frame is 32 in.

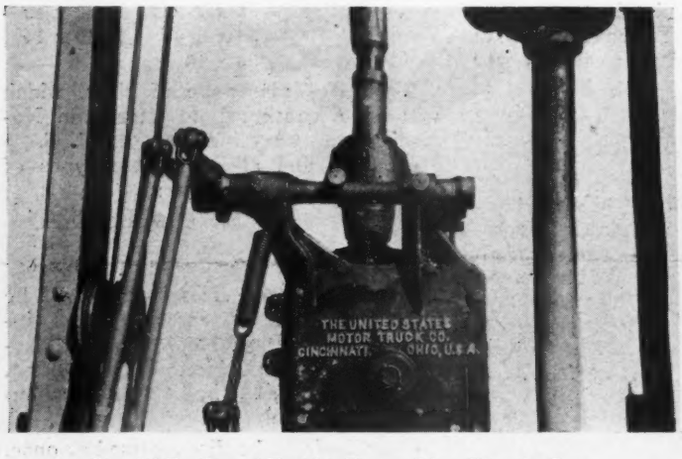
Amidship the frame is stiffened by an arched cast steel transverse brace of I-beam section, with gussets cast integral, riveted top and bottom to the flanges of the side frames. On this brace are mounted the intermediate brake shafts. This method of mounting prevents binding of the shafts in their bearings through frame distortion, as sometimes happens where the bearings are mounted on the side frames.

All frame riveting is done with hot rivets, insuring the utmost strength to all connections.

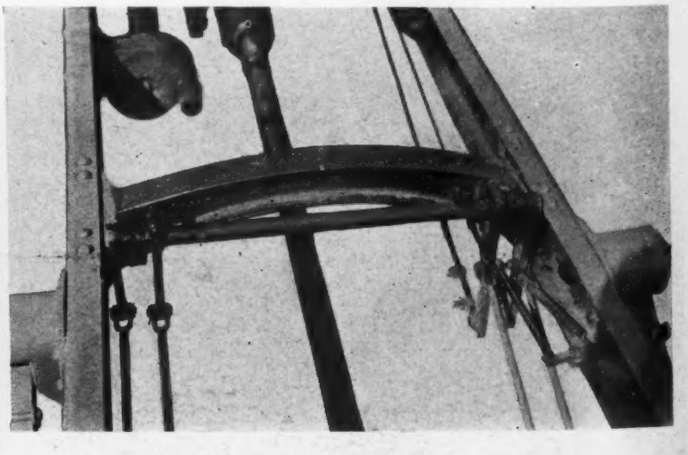
The engine used in the mail truck is the type C-4 Continental, with four cylinders, 4⅛ by 5¼ in. The design embodies no changes from the standard Continental type. A G-4 Eisemann magneto, an over-size for this engine, is mounted on a cast base on the right side of the engine, driven by flexible coupling from the pump shaft, driven in turn from the timing gears. No impulse starter is used on the magneto; nevertheless, the engine starts easily without the use of batteries, because of the size of the magneto. The carburetor is mounted on the left side of the engine, with a hot air stove on the manifold to assist vaporization. Exhaust piping is of seamless steel, 2¼ in. in diameter, and a Vacuum muffler is used. The engine is without governor.

Oiling is of the Continental standard type, two plunger pumps in the side of the crankcase being actuated by eccentrics on the camshaft. The crankcase holds 6 qt. of lubricating oil.

No subframe is used in supporting the engine, which is mounted between the



Special Design of Top for Brown-Lipe Gear to Care for Special Shifting Devices



Cast Steel Transverse Frame Brace, Mounting Intermediate Brake Shaft

Radiator Cap, Which Makes Leakage Through Top Impossible

frames very much the same as in Class B army trucks. The two crankcase arms at the rear are carried between twin coiled springs above and below the arms, within the flanged top and bottom of the side frames, and the front of the engine is carried on a swivel pin support. This method of engine suspension relieves the engine of all torsional strains, due to distortion of the frame, and also reduces to a minimum the vibration due to road shocks.

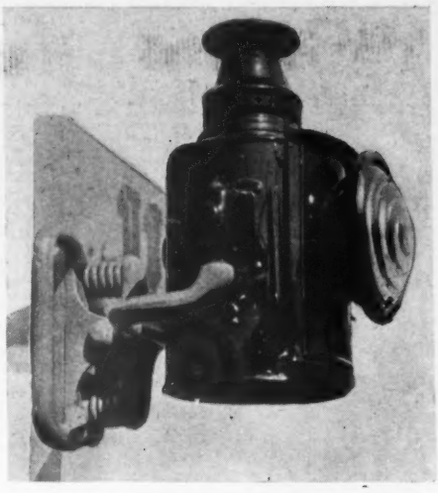
Gasoline feed is by gravity from a cylindrical steel tank holding 22 gal., mounted over the engine and under the driver's seat.

Engine cooling is accomplished by means of a special radiator, of the Long tubular type, with cast water reservoir. The design of the radiator cap reflects the ingenuity and care that is shown everywhere in the details of this truck, for the cap is held tightly to the gasket over the cast reservoir by means of a thumbscrew bearing on a cross lever pinned to the cap. This gives a strong, even bearing all over the cap.

The transmission is of the Brown-Lipe selective gear type, and is made an integral part of the power plant through bolting it to the rear face of the engine bell housing. Three speeds forward and one reverse are provided, with a plunger interlock. Because of the unusual design of this truck, the manufacturers found it necessary to provide a different external shifting gear than is standard with this unit, and this is accomplished by fitting a special cover plate to the gear box. The cover plate carries two transverse shaft bearings, in which work the gear shift shafts actuated by the hand lever at the driver's seat.

A Brown-Lipe multiple disc clutch is used between the engine and transmission.

Power is transmitted to the rear axle through Arvac Universal joints and tub-



Special Spring Lamp Bracket, Which Also Serves as Handle for Driver Climbing Aboard

ular steel shaft, 1½-in. in diameter, splined to the forward universal joint.

The rear axle is of the Sheldon, worm-gear type, embodying all the well-tried mechanical features of that axle. Braking power is applied to the wheels through double internal expanding brakes, each pair being mounted side by side within the brake drum. Steel cables from the foot brake pedal and hand brake lever actuate, through cranks, the intermediate brake shafts mounted on the cast steel midship frame brace, and these, in turn, manipulate the wheel brakes through adjustable rods connecting with the operating shafts on the rear axle.

Ingenious Engine Housing Clip, Which Not Only Holds Side-Plate in Place, but Wedges It Down to Keep It From Rattling

The wheels throughout are of extra heavy artillery type, with fourteen spokes, and carry 36-in. by 6-in. Goodyear cord pneumatic tires, on demountable rims.

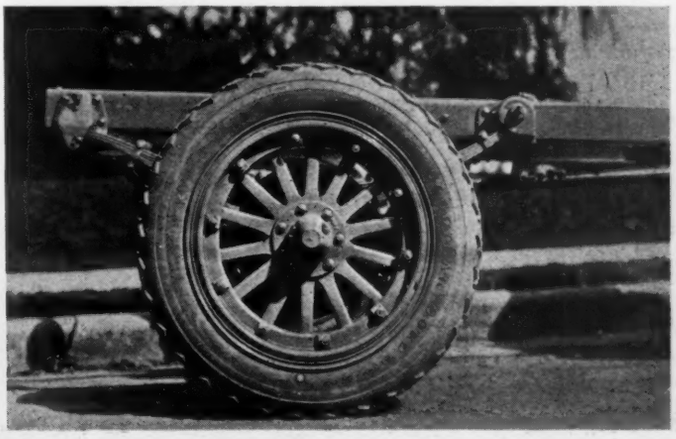
The front axle is also of the Sheldon type, deeply bowed to clear the engine when the front springs are under compression.

The springs are of alloy steel, 42 in. by 2½ in. in front and 54 in. by 2½ in. rear. The front springs are directly beneath the frame, and the forward end of each is housed in a husky casting, which also forms the step used by the driver in climbing to his seat. The spring works on a drilled pin. The rear end of each spring is held in alignment by a heavy casting, and is free to move fore and aft as the load varies. This same method is used on the rear springs, save that they bear on cast brackets riveted to the outside of the side frames.

The steering gear is of the Ross, full worm type, mounted on the right side of the truck. Spark and throttle levers are on a quadrant just below the 19-in. wheel. Gear shift lever and brake lever are at the right of the driver.

The foot rest provided for the driver's left foot, when using the accelerator button, is of a very sensible type, as it supports the foot under the arch, preventing fatigue on long drives.

Rear Wheel, Showing Heavy Construction and Also Spring Arrangement.

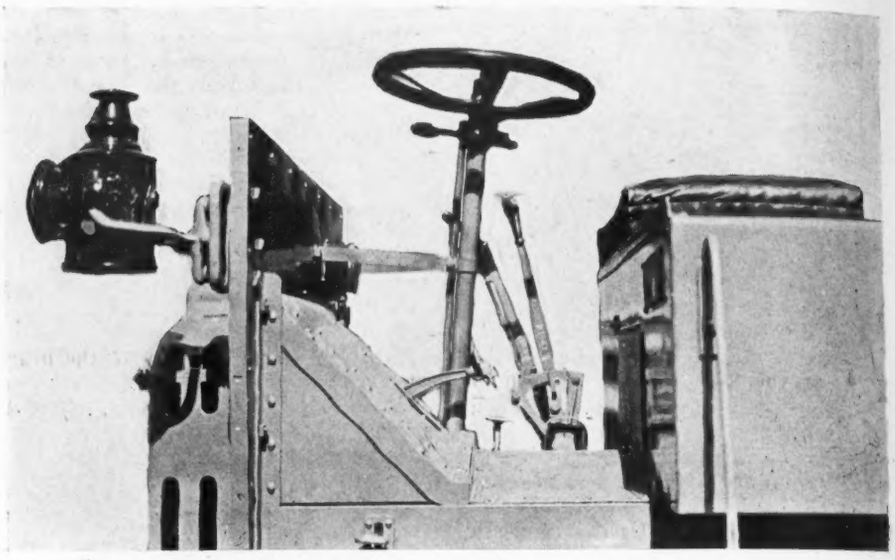


Sensible Foot-Rest for Foot Working on Accelerator Pedal.

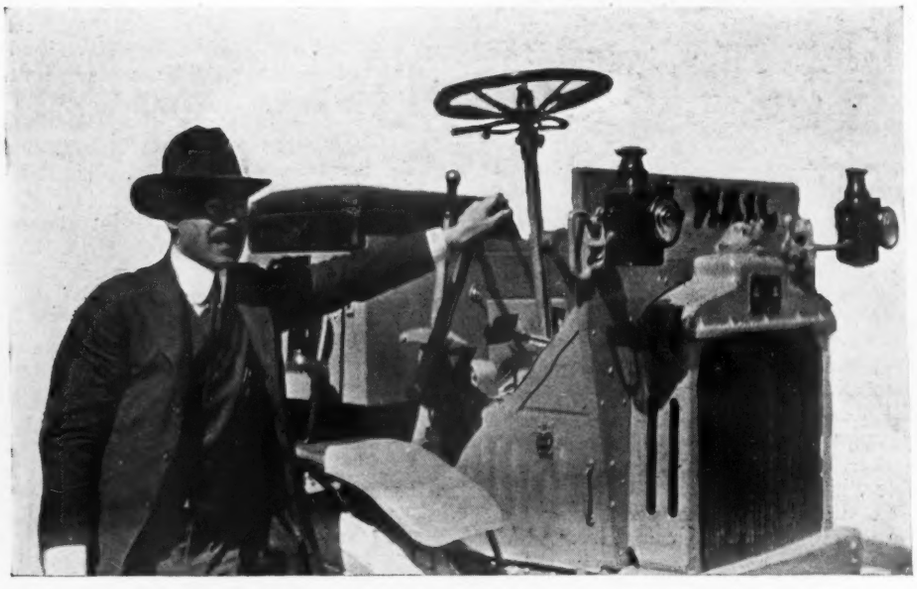
The engine housing is of pressed steel, with the driver's seat superimposed upon it. All floor boards and the engine housing are removable, so that, in spite of this type of construction, the engine is very accessible. By an ingenius beveled lug arrangement, the spring clips which hold the side plates in place also automatically press them downward into place, preventing rattling at all times.

Fenders are provided for the front wheels, and these are supported in part by a curved rod riveted to the sides of the seat box, which makes them available as a handle in mounting to the seat.

Two Adams-Westlake lamps are mounted on the dash, in ingeniously contrived spring brackets, which minimize vibration and thus prolong the life of the lamps. These brackets also form handles for use of the driver in climbing to his seat.



Close-up of Driver's Compartment. The Steering Gear is Substantially Braced



E. A. Haskins, Assistant Chief Engineer of the United States Motor Truck Company, Who Had Much to do With Designing the Trucks

Very strongly built bodies were put on these four trucks at the plant of the Martin Truck and Body Corp., at York, Pa., where the trucks halted on their trip to Washington. These bodies are of the standard parcel post truck type, 9 ft. 6 in. long inside, 68 in. wide and 68 in. high. The sides are of the usual wood body type to the height of the seat, and heavy wire grating is used from there to the top. The side gratings are in two sections, and are hinged at the top, so that packages may be loaded or unloaded from the sides as well as through the rear doors, which are also of wire grating above the tailboard. Waterproof curtains are provided.

One of the interesting features of these trucks is the speed at which they operate. The gear ratio is 6½ to 1, and at 1500 r.p.m. of the engine, the trucks, on low gear, hit up nearly eight miles an hour. On high, at the same engine speed, the trucks do 25 m.p.h. They are designed to operate as high as 35 and 40 miles an hour on good roads with full loads.

The Post Office Department was put to no expense in the design, fabrication and assembling of these trucks, and it is but just to the United States Motor Truck Co., the builders, to say that the trucks look more like the current production of a long built line of machines than like the first trucks of a completely new design. That the design and workmanship are excellent is shown by the fact that, previous to the long grind over bad roads from Cincinnati to Washington, three of the trucks had had less than a 24-hour tryout over country roads.

E. A. Haskins, assistant chief engineer of the company, drove the pilot truck over the route to Washington and had charge of the convoy. Not a single repair was necessary on the trip.

The Post Office Department will give the trucks a gruelling test in the rural parcel post and mail service, and will doubtless add many more of this same type to its equipment later on.

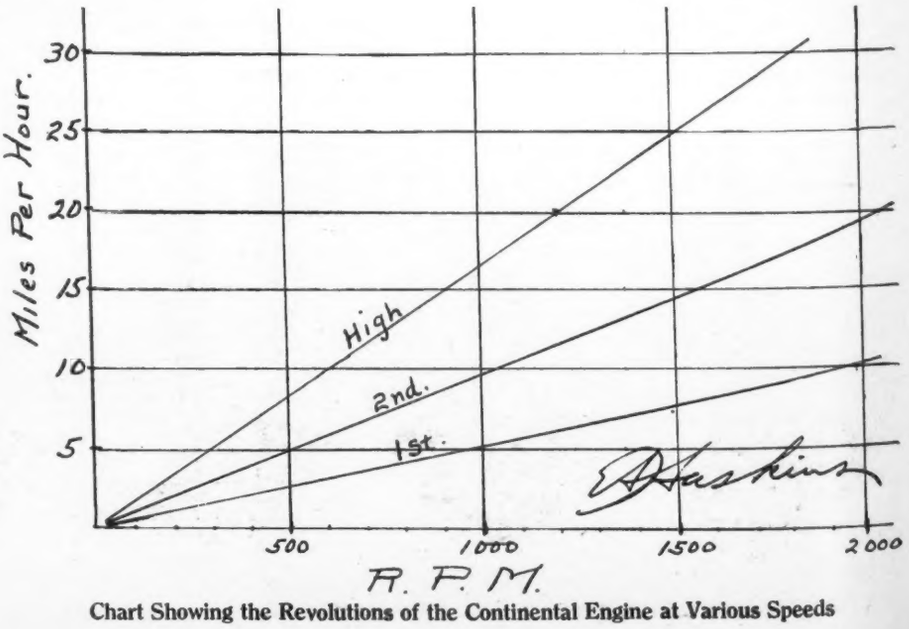


Chart Showing the Revolutions of the Continental Engine at Various Speeds

Highways Transportation in United States Receives Great Endorsement at Washington Conference

Eleven Regional Chairmen Meet in Washington and Plan Nation-Wide Work. Herbert C. Hoover, Secretary Lane, Secretary Redfield and Other Notable Men, Pledge Their Support to Tremendous Campaign for Highways Transport Expansion

By A. V. COMINGS

A VERY important department of the United States government was pledged to the support of the comprehensive work being done by the highways transport committee of the Council of National Defense at the conference in Washington September 16, 17 and 18 of the eleven regional chairmen of that committee. The gathering was by far the most important ever held with reference to highways transportation in this country, and its effects will be far-reaching in quickening the development of motor truck transportation in every section of the United States as a necessary war measure.

Herbert C. Hoover, allied food administrator, was the most important speaker at the conference, and Mr. Hoover drove home to the regional chairmen the tremendous importance of utilizing every possible means of efficient highways transportation that every ounce of food raised in this country be delivered to the ultimate consumer in good condition. Mr. Hoover made the startling statement that fully 50 per cent of the perishable food now raised in this country goes to waste through inability of the farmer to get his product to the consumer before it spoils, or because of the extreme cost. He pointed out that a well-organized rural motor express service through every farming community in the country, carrying farm products to the nearest market, would save practically all of the food now wasted and would also be an incentive to the farmer to raise more food because he could market it.

ROY D. CHAPIN, Chairman

GEO. H. PRIDE

H. G. SHIRLY

MEMBERS OF THE HIGHWAYS TRANSPORT COMMITTEE

R. S. HARGREAVES, Secretary to Committee

One of the most startling statements Mr. Hoover made to the regional chairmen was that the deaths from starvation that will follow the great war will be more than the deaths in the actual conflict, unless every effort is put forth in this country to raise and conserve the vast amount of food that will be necessary to meet demands when peace comes.

The food administrator stated that the employment of more motor trucks in hauling farm products would do away with thousands of work animals that now consume vast quantities of food, and this will have its effect in the net amount of food that will be available for human consumption.

In closing his address, Mr. Hoover paid a high compliment to the highways transport committee and its entire organization on what has already been accomplished, and pledged the active support of every member of the food administration organization, in every state in the Union, in assisting the committee's work.

So thoroughly sincere is Mr. Hoover in his desire to see rural motor express service extended that he very willingly gave of his valuable time posing for the moving picture cameras in connection with a motor truck loaded with corn, that his personal interest in this work might be vividly shown on every moving picture screen in the United States. The value of this pictorial endorsement should not be underestimated as a factor in educating all parts of the country to the necessity of the rural motor express.

Franklin K. Lane, Secretary of the Interior in President Wilson's cabinet, was another prominent speaker, who appre-

THOMAS D. KNIGHT

C. A. MUSSELMAN

C. W. REID

T. D. M. CARDEZA

RAYMOND BECK

ADVISORY TO HIGHWAYS TRANSPORT COMMITTEE

(1) J. R. COOLIDGE, Jr.

(2) G. H. PRIDE

(3) C. A. MUSSELMAN

(4) TOM WINN

(5) H. L. GORDON

(6) J. T. STOCKTON

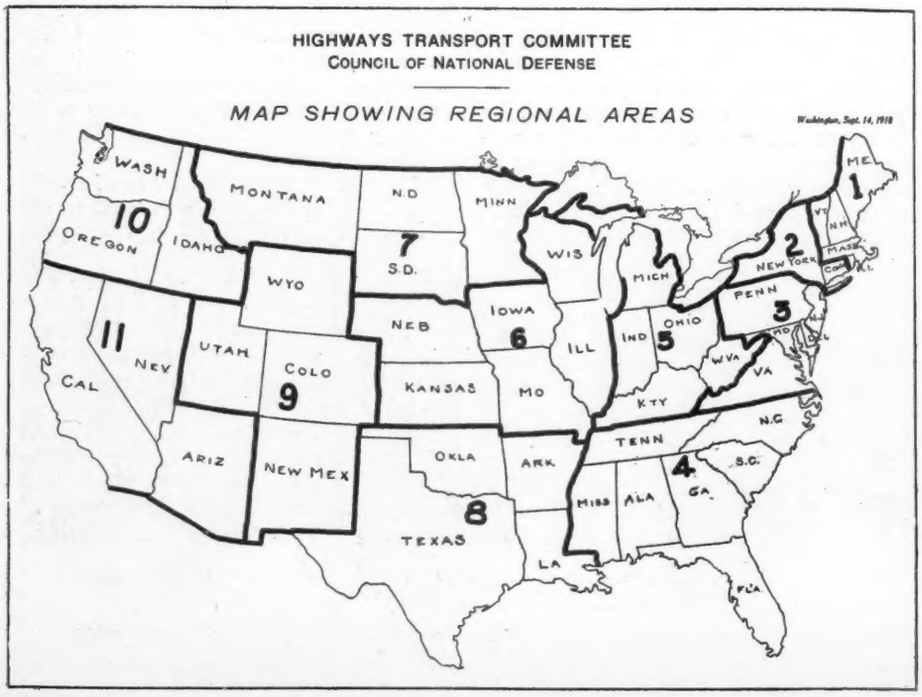
(7) EARLE BROWNE

(8) J. F. WITT

(9) TOM BOTTERILL

(10) J. H. MEIER

(11) L. A. NARES



The Eleven Regional Chairmen Under the Highways Transport Committee

The Map Shows the Regional Areas of Which These Men Are the Heads

ciates the importance of the efficient use of motor trucks in highways transportation. He told the regional chairmen that with the end of the war he hopes to see a vast reclaiming of non-productive lands; the arid lands of the west, which must be irrigated, the cut over lands of the midwest, which must be made suitable for cultivation, and the drainage of the swampy lands of the south and southeast. In this work, he hopes to see returning soldiers actively engaged, and later he wants to see the soldiers settled on these newly released lands engaged in producing food. The motor truck will play a great part in this vast program of reclamation, Secretary Lane thinks, and he pledged his entire department in aiding the upbuilding of highways transportation during and after the war.

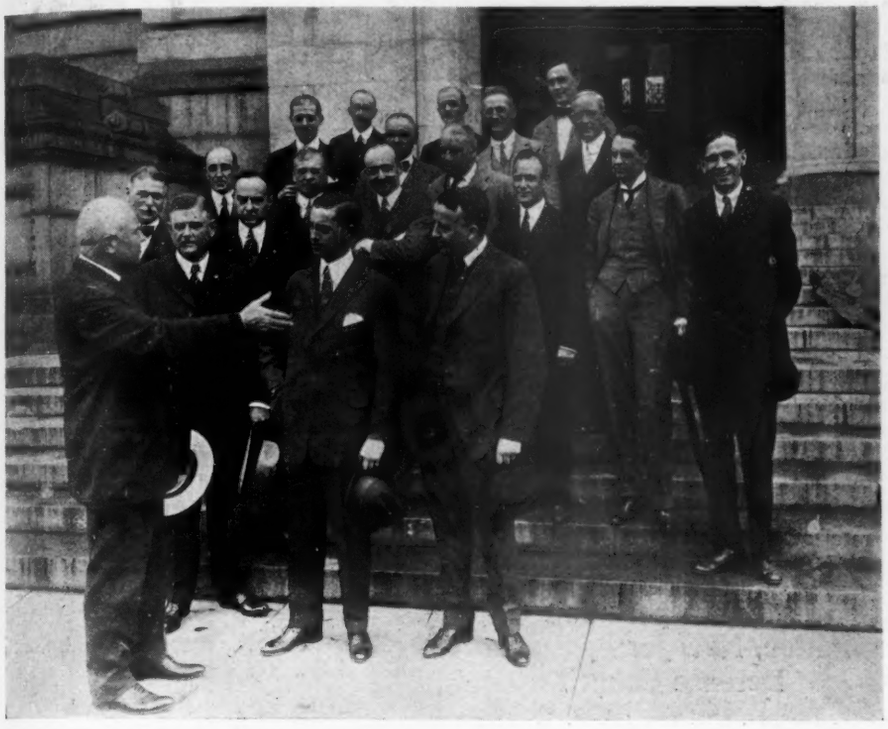
One of the most interesting addresses made at the conference came from Secretary Redfield, of commerce. He pointed out that transportation in this country is not a matter of railroads alone—but of a trinity of methods—railroads, waterways and highways—and that only through the wise and efficient development of all three will the transportation needs of this country be well met. He

said that the coming of the motor truck as a real factor in transportation was not accidental, nor incidental, but it came as an absolute essential and would so remain.

One of the strongest points Secretary Redfield made in his address was that future roads must be built to sustain motor truck traffic, that to argue that motor trucks should not be allowed on the roads because they damage the roadbed is as silly as to argue that railroads should have stuck to lighter locomotives because the heavy type demanded by present-day traffic injured the old forty and fifty pound rails. Build the roads to meet present-day conditions, is the demand made by Secretary Redfield. "It is the merest common sense; it has got to be done," is the way the secretary put it. He also stated that the vast use of motor trucks in highways transportation is not a matter of another future generation, but that it is coming in the very nearest future.

The co-operation of the United States Railroad Administration was pledged in no uncertain manner by Edward Chambers, director of traffic of the administration, and his assistant, R. C. Wright. They are heartily in sympathy with the use of motor trucks on all short haul traffic, for their entire experience has been that the short haul is absolutely unprofitable to the railways, uses cars that ought to be used in long haul work, and congests terminals badly. As a result of the meeting of these two officials with the regional chairmen and committee members, every chairman was given a letter of introduction to the regional traffic director of the Railroad Administration in his district, and the railway traffic man was instructed to co-operate in every way in promoting the use of motor truck transportation as a relief to the railroads in his division.

Col. W. D. Uhler, of the United States Army, gave the conference an idea of what is planned by the government as to roads during the war. He stated that only such roads as were being used by military trucks in the government service, or private trucks carrying munitions, food and government supplies, should be considered as absolutely essential and that they should be kept in the best of repair. No bond issues for road work will be authorized by the capital issues committee of the Federal Reserve Board unless it can be shown that the work is essential to a proper carrying on of the war.



Secretary Lane Addressing the Members of the Highways Transport Committee and Regional Chairmen

Senator Chamberlin, of Oregon, chairman of the senate committee on military affairs and author of the Chamberlin-Dent highways bill, spoke to the conference at length and stated that he believed a wonderful era of road building along a definite plan will immediately follow the war, and that congress will be very receptive to a suggestion to spend billions on the right sort of road building when the time comes. Senator Chamberlin is an earnest advocate of efficient highways transportation, and will support its wide extension in present war work and in the period following hostilities.

Mark L. Requa, at the head of oil conservation in the fuel administration offices, told the conference that the present shortage of gasoline is about 20 per cent, and that present wastage through evaporation, spilling, leakages in fuel lines and inefficient running of motors, amounts to about 22 per cent. If the users of gasoline in this country will cut out this wastage and run their cars and trucks carefully and efficiently, there will be no necessity for further curtailment of the use of the fuel. If not, it is very likely, according to Mr. Requa, that rationing by card may be resorted to.

The conference was advised by the Department of Labor that every question of labor in which the organization of the highways transport committee might be involved would be referred to the local organizations of that committee all over the country, and every effort will be made to relieve labor shortage wherever possible by the proper use of motor trucks.

Among the messages conveyed to the regional chairmen was one from E. N. Hurley, chairman of the shipping board, who sees motor trucks as the first link

Herbert C. Hoover Posing With a Rural Motor Express Truck, for Moving Pictures, During the Washington Conference

The food administrator looks to motor truck transportation, from farm to market, to make available the food that will save the world from starvation

from the farms to the markets of the world. He wrote:

"The highways are the first line of communication for both factory and farm with the seaports of the world. The farmer must visualize ships as carrying his wheat, cotton, fruit, dairy products and live stock. The great fleet which America is building will make the markets of the world as accessible as the next door state."

General Goethals wrote: "Effective use of our highways speeds up the delivery of munitions and all other army supplies, which otherwise might be delayed through terminal congestion."

Other addresses were made at the conference by Edwin C. Faber, Manager of the Electric Railway Association; C. A. Musselman, who spoke on Return Loads Bureaus; Raymond C. Beck, who talked of snow removal from highways during the winter; George Pride, haulage expert, and others who presented matters of interest to the regional chairmen.

Chairman Roy D. Chapin, of the highways transport committee, presided at all the meetings and drove home to the regional chairmen the aims and plans of the committee in his usual forceful manner.

On the last day of the conference the regional chairmen were given an audience by President Wilson, who is very much interested in the subject of motor truck transportation. President Wilson spoke briefly to the chairmen, showing his knowledge of the subject in no uncertain manner. He heartily endorsed their work.

The entire highways transport organization, which will soon embrace over 15,000 enlisted workers, reaching into every community in the United States, has been placed under the direction of Secretary of the Interior Lane, still remaining an integral part of the Council of National Defense. The United States has been divided into eleven administrative regions, with a regional chairman in each, chosen because of his proven ability in other lines. Under each regional chairman is the State Highways Transport Committee in each of his states, and the organization spreads out from these heads into every county and community in every state.

These regional chairmen are really big men in their various communities, and, as they are to devote practically all their time to this work, a wonderful expansion of efficient highways transportation by motor truck should loom in the immediate future in every part of the United States.

The regions and their chairmen follow:

Region 1: Massachusetts, Maine, Vermont, New Hampshire and Rhode Island; J. Randolph Coolidge, Jr., Boston.

Region 2: New York and Connecticut; George H. Pride, New York.

Region 3: Pennsylvania, New Jersey, Delaware, Maryland and Virginia; C. A. Musselman, Philadelphia.

Region 4: Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi and Florida; Tom Winn, Atlanta.

Region 5: Michigan, Ohio, Indiana, Kentucky and West Virginia; Harry L. Gordon, Cincinnati.

Region 6: Illinois, Wisconsin, Iowa, Missouri, Kansas and Nebraska; John T. Stockton, Chicago.

Region 7: Minnesota, North Dakota, South Dakota and Montana; Earl Browne, Minneapolis.

Region 8: Texas, Arkansas, Oklahoma and Louisiana; J. F. Witt, Dallas.

Region 9: Colorado, Utah, Wyoming and New Mexico; Tom Botterill, Denver.

Region 10: Oregon, Washington and Idaho; Julius H. Meier, Portland.

Region 11: California, Nevada and Arizona, L. A. Nares, Fresno.

Motors Division Under Glover

The division of the Quartermaster Corps having charge of the procurement of motorized vehicles is now headed by Colonel Fred Glover, former general manager of the Emerson-Brantingham Co., of Rockford, Ill.

The organization of the division has been completed and comprises three branches: procurement, administrative and district offices. The procurement branch is divided into sections, procurement of each type of vehicle being in charge of a separate section.

The administrative branch is under Captain S. P. Dean, and the district offices, located in Chicago, Cleveland, New York and Detroit, are in charge of Major M. B. Edgerton, Captain D. S. Devore, Major E. L. Jaco and Major G. D. Wilcox, respectively.

Double Reduction Gear-Drive on White Heavy-Duty Trucks

A new type of double reduction gear-driven rear axle has been adopted by the White Co., Cleveland, O., and has been found satisfactory, trucks constructed with this axle having been in active service for several months. The double reduction is obtained by driving gears which are housed within the wheels. The driving shafts are enclosed by the load-bearing member, as in the ordinary axle. The construction differing in this respect from the so-called internal gear drive. No increase in the weight of the truck has resulted from the change of axle. The complete details of the new heavy duty White models will be described in our November issue.

Highways Transportation Committee, New Jersey State Defense Council

David Harper, chairman; J. F. Winchester, vice-chairman; A. D. Way, Jr., secretary.

Field Section

District No. 1 (4 Counties).

John Iliff, building material business of Iliff & Lewis, Newton, Sussex Co.

District No. 2 (4 Counties).

Robert Wallace, traffic and industrial agent, Jersey City Chamber of Commerce.

District No. 3 (4 Counties).

M. D. Warren, traffic manager, Trenton Chamber of Commerce.

District No. 4 (4 Counties).

A. L. Munoz, chief of Highway Department, Perth Amboy; also in trucking business.

District No. 5 (5 Counties).

W. Chandler Stewart, motor vehicle registrar, South New Jersey; also in garage business (States Garage), Atlantic City.

Executive Section

Return Loads Bureaus.

Chas. T. Kavanaugh, president, Chas. T. Kavanaugh Co., contractor, 32nd & Prospect Ave., Bayonne.

Rural Motor Express.

A. L. Clark, chief of the Bureau of Markets, State House, Trenton.

Statistics, Mapping, Snow Removal.

T. J. Wasser, City Hall, Jersey City, Association County Engineers; also engineer of Hudson Co.

Store Door Delivery, R. R. Congestion.

Chas. Milbauer, eastern representative, Transcontinental Freight Lines, Woolworth Bldg., New York City.

Inland Waterways.

A. K. Loechel, woodworking mill, South Broad St., Trenton.

Publicity and Educational.

Joseph Gunn, educational director for Fuel Administration and ex-newspaper man, care of Fuel Administration, Newark.

Chalfant Engages in the Export Trade

E. P. Chalfant, one of the pioneers of the automobile industry, has resigned as Eastern division manager of the Andersen Electric Car Co., to become general manager of the Automotive Products Corp., located on the twenty-ninth floor of the Woolworth Tower in New York City, an export house organized in 1917 by the American Steel Export Co. for the purpose of specializing as direct foreign representatives for American manufacturers of automotive products of every nature.

Chalfant, whose name is a familiar one in the industry, is well fitted for his new responsibilities. As far back as 1903, he pioneered the Orient Buckboard, the progenitor of the low priced cars, not only on the prairies of the West, but in every civilized country of the world, and claims to have been the first American producer to advertise motor cars for export. His subsequent connections with the Packard, Thomas and Detroit Electric companies in high official capacities brought him an invaluable acquaintance in the foreign as well as the domestic markets.

Renting Commercial Cars at a Profit

How One Truck Owner Solved the Problem of Satisfying His Customers, His Drivers and Himself, and Built up a Business Which is Growing Steadily

By C. P. SHATTUCK

ONE of the many problems entering into the rental of motor trucks or selling the customer commercial car service, is that of delivering to him 100 per cent value. In other words, a business house purchasing transportation does so because it believes or is sold on the basis of economy, on the principle that the truck will carry a greater load and in much quicker time. Because of these factors it is assumed that the truck is cheaper or more economical than the horse even with a rate of from $30 to $40 the day for the former.

Should the Customer Pay?

In hiring a motor truck by the day or the week, the owner virtually enters into a contract to deliver the customer 9 or 10 hours' service of the car but it frequently happens that the driver will consume unnecessary time on the trip, and will report fake troubles to cover up his deficiencies. Then again a driver may be late in reporting with the truck to the customer, or may leave 15 or 30 minutes earlier than he should for the return trip to the garage. These time losses, while they appear to be insignificant, may amount to several hours a week, and when the customer is paying $4 an hour, this can run into considerable money. The customer should not be obliged to pay for service he does not obtain, neither should he be expected to pay $4 an hour for the time required to replace a truck in trouble with a serviceable one or for the time required making roadside repairs; at least this is the attitude of Charles T. Kavanaugh, Inc., Bayonne, N. J., whose concern rents a fleet of 5 and 7-ton capacity trucks in addition to utilizing trucks in contracting work.

Pays for Actual Service Only

Mr. Kavanaugh has worked out a system for operating his trucks in rental work that not only guarantees users the service sold, but includes means for eliminating the losses for which the inefficient driver is responsible, unjust claims made by customers, and those brought about by neglect on the part of those intrusted with the work of keeping the machines in serviceable condition. In other words, Mr. Kavanaugh's sales policy is to give the customer full value. That the plan has been successful is proven by the fact that the fleet of fifteen 5 and 7-ton trucks have been frequently operated with double shifts of drivers and that at times as many as twenty-four outside cars were hired to meet the demand.

Rental Plan Developed

Mr. Kavanaugh, who made his initial investment in commercial cars in June, 1916, these comprising two 5-ton Packards with dump bodies, did not begin the use of trucks with an idea of engaging in the rental business, which is the result of a careful study of their economical and profitable operation. Primarily the first few trucks were bought with the idea of obtaining greater efficiency in the work of transporting the huge quantities of material utilized by the company which engages in the carrying out of contracts for building roads, sewers and other county, state and municipal work, contracts running into seven figures.

Horse Equipment Sacrificed

Six months later, or in January, 1917, a repeat order for three 5-ton Packards was given and a contract made for two more, delivery to be made by May. In the meantime the cost of maintaining 64 horses (32 teams) and their equipment so increased, and because drivers were

Illustrating Advantage of Inspector Following up Trucks

The driver was experiencing float trouble with the carburetor. It was quickly remedied and within ten minutes after trouble was reported.

Showing the Hopper Method of Loading Trucks at the Dock

A derrick of four hundred yards daily capacity keeps the hoppers supplied. This system was inaugurated with the adoption of trucks, and has effected a big saving in time and money

The Garage and Repair Station, Which is Being Enlarged to Care for the Expanding Business

utilized and the inspector fail to make a report on these, the daily sheet would reveal who was at fault by means of the telephone calls, office and garage, one checking the other.

How System Operates

The success of the system is largely due to the fact that the greater part of the rental work is with firms contracting for service, including transportation over well defined routes. There is, however, considerable trucking under conditions diametrically opposite, but inasmuch as the inspector learns in advance of the haul, etc., and being familiar with the roads, he is able to come upon the truck or trucks very readily.

The older customers have been educated to advise the office if they believe a driver is taking longer than he should to make a delivery, etc., and should a firm complain that a truck is overdue, a report of where the truck was last seen is obtained when the inspector makes his telephone call. If the complaint is warranted truck is immediately looked up.

Road Delays Largely Avoided

Drivers are supposed to take certain streets or operate over certain routes laid out by the inspector. This enables him to compute the time the truck should require for making certain hauls as well as enable quick location of a car reported late. Drivers have strict orders to call the garage if they experience any mechanical trouble requiring the service of the traveling repairman and that cannot be fixed in 15 minutes. This repairman follows the trucks and makes hourly reports to the garage. The driver must also notify the office. Here again the system provides a check. In the event a truck cannot be repaired within a reasonable length of time on the road, another truck is sent to take its place, but the time lost is deducted from the customer's bill.

The writer was afforded an opportunity to note the working of the system by coming upon one of the trucks transporting a capacity load from New York to Jersey City. The engine was missing badly, so much so that a stiff grade could not be negotiated. The driver worked on the carburetor and fussed around for about five minutes, then called the garage and office. Within ten minutes the inspector arrived on the scene. He had called the office from nearby and received a report that truck No. 24 was in trouble at 1297 Blank street. The trouble, the float of the carburetor, was quickly remedied, and the truck on its way 20 minutes later. In looking over the inspector's daily report at the end of the day an entry was found stating that truck No. 24 lost 20 minutes at 1297 Blank street through float trouble, etc.

Trucks Earn $40 a Day

The trucks earn from $30 to $40 a day, the former charge being for the 5-ton machines. Much of the rental is by contract. A concern hiring a truck by the week may have an option on the services of three, and in one case a coal concern has an option on five extra machines. Another instance noted is a contract for an unlimited number of trucks; that is, practically so. There is, of course, a sliding scale of prices.

A day's service is from seven in the morning until 5.30 at night with one hour deducted at noon for the driver's dinner. The drivers are unionized and the union time calls for the day's work to begin at 6.30 in the morning and end at 6 at night. If the occasion requires a truck to be in service earlier or later, the drivers are paid the union's overtime rate and the customer charged for same.

The discrepancy in the time is explained by the clocking system which requires a driver to ring in when he arrives and see that he has fuel and water, etc., before he rings out or starts his day's work. At night he is supposed to ring in at six o'clock, and as frequently a driver is called upon to assist a mechanic for an hour, the former rings out at seven. This extra hour's work or overtime, shows on the time slip, also on the garage time sheet.

Drivers on Time Basis Only

The drivers are not regularly employed; that is, are not engaged by the week but daily or half a day. They are called upon when required, and while it may appear that the plan is not practical, Mr. Kavanaugh states that he has a list of good drivers and that insofar as he knows his foreman or inspector never fails to produce the required number even if a rush of work develops for but half a day.

The trucks are inspected each night by the night manager of the garage and the inspection card requires a report on 11 parts, those most subject to trouble and requiring adjustment. Drivers report any trouble to the day man of the garage and a card is made out and tied to the steering wheel. All repairs are made by the night men. A report is also made out of the condition reported of the truck, if repaired or not, and if not a reason must be given. The policy of the company is to keep the trucks in condition at all times instead of laying them off for a complete overhaul. A fuel report is included in the system, the fuel and oil being supplied by the night man.

INSPECTION OF CAR

	Condition	O. K.
1—Radiator		
2—Fan Grease Cup		
3—Fan Belt		
4—Compression		
5—Spark Plugs		
6—Front Spring and Clips		
7—Hoist Pump		
8—Hoist Chain		
9—Hand [illegible]		
10—Foot Brake		
11—Rear Spring and Clips		

As previously stated there have been times when the trucks were operated night and day. One occasion was last January and February when there was a shortage of coal and dealers were hard put to secure transportation during the rush work. During that period the horse was severely handicapped by the snow and slippery roads. There have been times when some of the trucks have been idle but the driver expense is eliminated.

Selling Service

Since the rental system was inaugurated the trucks have been kept busy. This is largely due to the fact that the company has a large list of firms employing trucks from time to time and these are called upon daily by phone. All of the trucks are not used for rental for the requirements of the company keep several busy. After the needs of the various departments for the next day are ascertained and the number rented, the outside customers are called.

The business of Chas. T. Kavanaugh, Inc., is divided into three departments, namely, general contracting, building material and motor trucking. Consequently, the trucks are charged one-third of the overhead expense. Included in the trucking account are the charges of operating and maintaining the inspector's car and the Ford. The 2-ton Form-A-Truck is employed in the building material department and its cost is not included in the trucking department.

The company has $9000 invested in a garage and repair shop and $1000 in tools and equipment. The repair shop is 25 x 65 ft. and is well equipped for handling all work. The machine equipment is

hard to obtain, that the company sold all of its horse drawn equipment at auction. Mr. Kavanaugh states that the company lost $4,000 by the sale according to the inventory taken on the first of the year. "Had we waited until the first of 1918 our loss would have been considerably greater," said Mr. Kavanaugh, "for the price of feed and other factors entering into the overhead increased greatly."

Large Equipment is Profitable

Mr. Kavanaugh says that his experience with the first seven trucks, convinced him that a large number of trucks are essential to successful and profitable operation and in September, 1917, he ordered two 5-ton White chassis, and three months later placed an order for six 7-ton Reliables. In addition to these he placed in service a 2-ton Smith Form-a-Truck, two Fords and a Chevrolet.

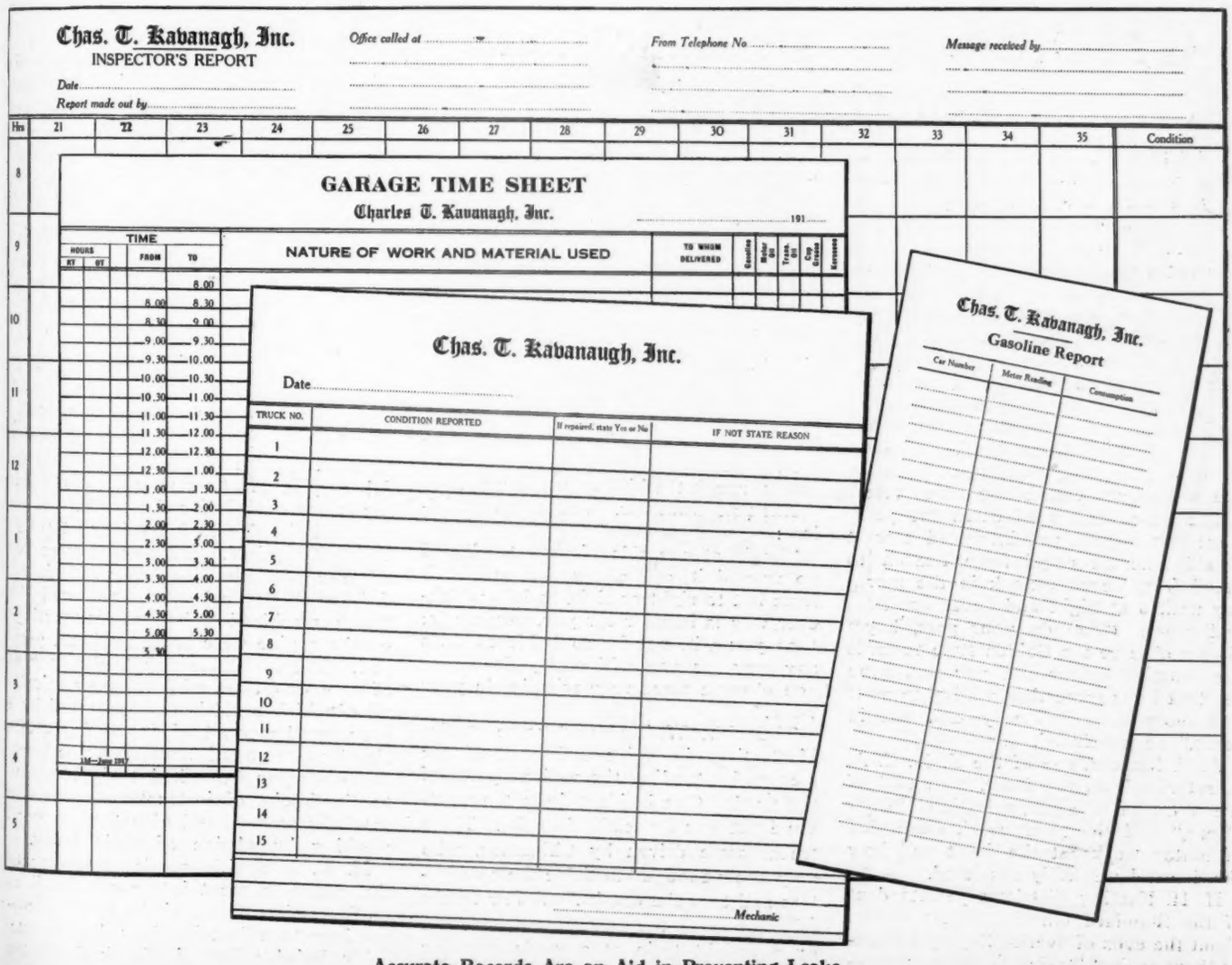
As is generally the case in contracting work there occurred times when all of the trucks were not kept busy. This coupled with the fact that there were opportunities to sell trucking service to companies whose business is variable, insofar as transportation requirements are concerned, led to the development of the rental service previously referred to.

The first few months were full of the trials and tribulations attendant upon a new venture. Customers using the trucks would remit with deductions from the charges, claiming that the truck was laid up or broken down when on such and such a job, that the driver started off with a load and took longer to make a delivery than did their horses, etc. These and similar losses, the responsibility for which could not be readily traced for the customers, would not keep track of the arrival and departure of loads but would claim short time and service, and deduct it from their bills.

How the Leaks Were Plugged

Convinced that it was not practical to obtain co-operation from the customer or driver, Mr. Kavanaugh adopted the principle of the train dispatcher, that of keeping an accurate record of the movement of the trucks, but by means of a traveling inspector in an automobile. This inspector calls upon all firms contracting for service and ascertains the character of transportation, length of hauls, etc., and particularly the route over which the truck is to travel. It is his duty to make flying trips over the territory in which the cars are being operated and to file a daily report sheet which enables the office to note at a glance the hour of the day, place, work being done and condition of the truck if in trouble. Each truck is numbered, and a space provided for an hourly report on each car. Such a report is not practical with but one inspector, but sufficient evidence is obtained to check the work of a driver and to verify or disprove claims made for loss of service by the customer.

The inspector who also calls the office (Kavanaugh's) from time to time, must set down the time as well as from what phone he called and who received the message. The last named prevents disputes arising as to who is responsible for neglect. The inspector also keeps in touch with the garage in case a truck develops trouble on the road or extra trucks are placed at work which is frequently done. The names and addresses of the users are supplied the inspector by the office and he includes their operation in his report. Should extra machines be



Accurate Records Are an Aid in Preventing Leaks

The inspector's daily report, showing location of truck, time seen and cause of delay. The garage time sheet, indicating work done, material used and detailed labor report. The night repairman's report of work performed, and fuel slip or gasoline report

modern in every respect, and the foreman has three day and two night men under him, in addition to the drivers, who work overtime as explained. The company is building a new addition to the garage, which will afford a space of 37 x 50 ft. With the exception of painting, all work, including body, is cared for.

The recent additions to the fleet are equipped with a combination body, one that permits of dumping the load in the conventional manner or at either side. The body has two side chutes, and either can be utilized. This arrangement has proven very practical for service in one-way streets, where the ordinances do not permit of dumping from the end. All chassis are to be equipped with these bodies, which are stated to greatly facilitate unloading coal, stone, sand, etc. The capacities are five and seven yards.

Cost figures are not available other than the company has $80,177 invested, of which amount $70,177 is in trucks. As to the return on this investment, it is stated that it is 29 per cent gross. The cost figures include depreciation, insurance, interest on investment, etc.

Mr. Kavanaugh states that from his experience he believes the only way to obtain a good return on money invested in trucks is to operate a fleet. He also advances the opinion that transportation by motor truck will ultimately be developed to a point where the average concern will prefer to contract for service rather than maintain a small number of trucks. He also contends that the majority of the truck accidents caused by gross carelessness could be avoided if the insurance companies adopted a clause in their policies that after a driver figured in three accidents no insurance would be issued. "Post such a rule in the garages," said Mr. Kavanaugh, "and avoidable accidents will decrease very rapidly. Of course, there are unavoidable accidents, and such should not be held against the driver." One of the rules of the company, a copy of which is located on the truck back of the driver, is that none except an employee is allowed to ride on a truck. In case of accidents a driver is required to notify the office within 15 minutes of its occurrence.

GMC Smoker an Educational Entertainment

SATURDAY night, September 21, the officials of the General Motors Truck Co. gave a smoker to some fifty drivers who are operating G. M. C. trucks in Chicago. There was not a syllable of sales talk dropped, and it was simply a social gathering, during which was discussed the subject nearest the mind and heart of every one present—his job.

E. J. Kilbourn, manager of the G. M. C. Chicago branch, opened the meeting by introducing Lieutenant Martin, of the Chicago Police Traffic Squad. Mr. Martin explained the underlying reasons for the ordinances controlling the street traffic. He frankly admitted "coppers" were not angels, yet intimated that it would take an angel from heaven to stand from seven o'clock in the morning until 6 at night and never get tired and cross. "You do your part, boys; simply observe the Golden Rule towards the crossing officer and you will soon see that he is more than willing to meet you more than half way—and not in court," he concluded.

A. C. Stevens, one of the Y. M. C. A. secretaries from the front, then told of the work of the organization "Over There," and the great work demanded of motor trucks at the front and how the demand was fully answered.

H. H. Keating, district superintendent of the Standard Oil Co., told the men about the evils of overloading, and warned them against "trying to perform miracles" with their trucks. His talk was illustrated by some very well drawn charts showing the proper manner of loading, etc.

F. A. Whitten, chief engineer of the company, explained parts of the detail of the G. M. C. truck, with reference to its proper management. One of the 5½-ton trucks had been jacked up on a truss some 6 ft. in height, so that the men could make a careful study of the underneath part of the chassis. A smaller truck was stationed in the front of the room. From these two trucks supplemented by a chart on the wall a very clear, comprehensive and simple object lesson was drawn. Mr. Whitten particularly urged systematic care of the vehicles, especially with respect to oiling, even through the hidden grease cups.

Extracts from Mr. Whitten's talk follow:

"Begin at one side of your truck and go around it, and always go around it from left to right or right to left, whichever way is handier for you, personally; then you will not be so liable to miss any cups, as you will surely do unless you observe some regular order in your work."

Then Mr. Whitten told some stories illustrating the value and need of the men understanding the various parts of the truck. One incident from the western front was especially forceful. These trucks were driven by Chinamen, who only knew enough "to tickle the carburetors and turn the cranks." A few trucks at the end of the convoy were cut off by a freight train at a grade crossing one day, and the engine of the leading truck could not be started because the magneto had become grounded. The two men on this truck took turns "tickling" the carburetor and cranking until they had cranked all of the gasoline out of the tank, the rest of the trucks waiting in line behind them.

"The transmission is one of the things which makes very little complaint if neglected, consequently it should be inspected from time to time to see if it contains the proper amount of oil, and some care should be taken to use the right kind of oil in the transmission. Above all, do not use grease.

A Winter Driving Help

"The difficulty in cranking a cold engine in the winter time very frequently lies not in the engine, as is commonly supposed, but in the transmission. Just as long as the clutch is engaged, the transmission countershaft, which is buried in oil, must turn with the engine. The heavy oil used in transmissions thickens up in cold weather to such an extent that it is almost impossible to turn these gears. I would suggest that you will find cranking very much easier on a cold morning if you will have some one hold the clutch pedal down while you are cranking, or get a piece of wire, make it into a double ended hook, hook the lower end of it in the pedal slot in the floor board and hook the other end in the pedal to hold it down.

"Worm gear axles require the same kind of attention as do transmissions. This is another point where attention should be given to using the right kind of oil. Wheel bearings are somewhat like shackle bolts in that they will run without lubrication, but it is not good for them."

In addition to the items mentioned above, there are some twenty or thirty places which should be lubricated, most of which will run without oil for a time. Shackle bolts, radius rod pins, etc., etc., are examples of this.

Mr. Whitten mentioned the case of one of their trucks which had just been over-hauled in their shop. This truck had been in the hands of a succession of drivers, none of whom stayed on the job very long. As a result, no one was really responsible for the truck. It had not had the day-to-day minor attention which it required. Grease cups were lost or else had not been screwed down; finished bolts had been replaced by rough machined bolts; oil connections on the engine were broken off and plugged. The inevitable result of this kind of care was a bill of $182.50, practically all of which could have been saved by a very small amount of day-to-day attention by some one interested in the truck. In conclusion he called their attention to the books of instructions, which, if carefully read, would give them a good working knowledge of their truck.

H. L. Beckwith, service manager of the company, went into more detail as to the various parts of the truck, showing how to adjust bearings, brakes, etc.

Mr. Baird, editor of "Truck Talk," the house organ of the G. M. C. company, closed the meeting with a plea for conservation of gasoline in the more careful operation of the trucks.

Some Interesting Figures on Road Costs and Hauling Expenses*

A Plea for the Better Type of Road. Tests Show That Concrete Furnishes the Ideal Heavy-Traffic Road

WE ARE now entering upon a period in our transportation history when the waste entailed by awkward and unnecessary handling and transport of the products we buy and sell is to be eliminated. It is a period of zone activity—a period in which we are called upon to make greater use of the supplies and resources near at hand, rather than continue the uneconomic policy of paying for longer hauls where we can get what we need nearer home.

At this point the motor truck comes in. It is the right thing at the right moment. Railway lines already bind our great commercial and manufacturing centers together. We have no lack of facilities there. But we have progressed to a point where we must go back and pick up the loose threads in our transportation fabric. We must extend corollary lines into local zones to feed, clothe, and otherwise minister to the needs of the public.

That opportunity is yours. It is an opportunity created by the very logic of events. To emphasize the force of this tendency towards highway transportation as a corollary to the railway, I need only call your attention to the fact that the number of employees engaged in making the type of freight carrier you operate is already one-half the number employed by all of the railroads of the United States. And yet the motor truck is in its infancy.

There is one bar, however, to its most successful use. That bar is bad roads. You, as owners and operators, have the right type of highway rolling stock, but you lack the right type of roadbed. I want to drive this fact home, if I may, that you cannot run your highway trains at a safe profit without a good roadbed, and it is to your interest to work earnestly and constantly for the construction of durable highways.

All experience points to the vital need of a comprehensive and systematic plan of road improvement. Under stress of war conditions, car and labor shortage, and increased tonnage to be moved, traffic is turning back to the public highways. In thickly settled communities it can no longer be limited to tracks and railway yards; long distance, high-power motor truck lines have already been established. But it is in the short-haul business that the greatest strides are being made. Traffic is becoming so heavy and so dense that more power is required on our highways.

Power costs money, whether in the form of feed for draft animals, gasoline for the automobile, or coal for the locomotive. How to reduce the cost of transportation power, with an ultimate reduction in the cost of transportation, has been a problem. The price of feed and fuel is increasing. The price of materials used in the manufacture of freight and passenger vehicles is increasing. Also the cost of labor.

There is only one way open now to reduce the power cost, and that way is to get it **out of the road.** It can be done only by building a road so even, so rigid,

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and so durable that the same amount of power will pull a larger load at greater speed; a road on which the **full** force of the power may be used in pulling a larger load **on** the road instead of pulling **against** it with a lighter load.

Recently some tests were made in California by the Good Roads Bureau of the California State Automobile Association. These tests were made on different types of road to ascertain the amount of pulling power required to fact in cold figures that it takes 218 lb. of power to pull a one-ton load on an earth road; on a macadam road it takes 64.3 lb. of power; and on a gravel road in good condition, from 78.2 to 81.3 lb. Even on a level earth road, with dust about 1 in. deep, it required from 92 to 99.3 lb. of pulling power to get over the road. On a concrete road the same one-ton load required only 27.6 lb. of pulling power. These figures are accurate. The tests were carefully made under the direction of Prof. J. B. Davidson, of the Agricultural Engineering Department of the University of California. They emphasized the fact that when a road requires anywhere from 64 to 218 lb. of pulling power to get a one-ton load over it, that the road is costing the community too much. It is a very simple matter to take the difference in power-cost between a concrete road at 27.6 lb. and an unimproved road at 218 lb. and use that difference in paying for the concrete road, on which greater tonnage can be hauled at less expense.

Some little time ago a prominent truck manufacturer of Detroit caused a trip to be made by a two-ton truck carrying capacity load, through Wayne, Washtenaw, Monroe, Lenawee, Hillsdale and Jackson Counties, going via Ypsilanti, Milan, Dundee, Adrian, Hillsdale, Jackson; returning via Ann Arbor and Ypsilanti, for the purpose of determining efficiency of motor trucks on various road surfaces. The Recordagraph was placed on truck and locked. Truck was driven day and night and covered 238.25 miles. A section of tape from recordagraph on this trip from Detroit to Ypsilanti to Milan to Dundee, shows results with concrete, gravel and dirt roads as follows:

Speed in miles per hour made by two-ton truck, heavily loaded:

Concrete roads	16.4 m.p.h.
Gravel roads	9.5 m.p.h.
Dirt roads	4.6 m.p.h.

Travel on concrete roads 12 miles per hour greater than on dirt roads. On concrete roads this two-ton truck made 257 per cent better time than on dirt roads. All the dirt roads were in fairly good condition as it was rather a dry season.

The following is a verbatim statement of a test made September 16, 1918, with a two-ton truck, the purpose being to show the gas consumption of this truck when operated over an ordinary country road and when operated over a concrete road such as are standard in Wayne County:

The run in each case was exactly ten miles, and the weather during most of the test was threatening, and during the last part of the test, raining. The country road was made up of hard gravel going; newly turned-up dirt, good hard

*Extracts from paper read by Edward N. Hines, Chairman, Board of County Road Commissioners, Wayne County (Mich.) at Truck Owners' Conference, Board of Commerce, Detroit, September 19-20.

dirt road, soft slippery dirt, sand, and for the last mile the run was made with one wheel on the asphalt and one wheel in the dirt road alongside. The amount of gas used on the concrete road to go ten (10) miles was one and a quarter gallons (1¼). To go the same distance on the country road took two gallons and one gill (2 gallons, 1 gill). The time for going over the ten (10) miles of concrete road was forty-two (42) minutes, over country road, one hour and twenty-four minutes (1 hour, 24 minutes.)

Here is a saving of 1.85 cents per mile for gasoline alone, with gasoline at 23 7-10 cents per gallon, to say nothing of other factors, and with gasless Sundays this showing alone is vital.

Various topics have been assigned to able speakers in this conference, among which are the subjects of return loads, uniform cost accounting systems for truck operators, better methods of handling, loading, routing, bonus systems and premium plans to encourage efficiency on part of drivers or chauffeurs.

All of these topics contain much that is of merit, but all of them will fail of realizing our expectations without good roads traversable every day in the year, and every hour of the day. We have the trucks and the unlimited capacity to build more; we have the tonnage waiting to be moved, but where are the roads? What are we doing towards building more good roads, and what kind of roads shall be built?

With the few examples previously given in this paper, examples that could be multiplied a hundred-fold, if it were necessary, how can we doubt that the road is the crux of the situation. With a good road, time, gasoline, oil, tires, wear and tear on the engine and chassis, wear and tear on the driver are all reduced to a minimum. Paradoxical as it may seem, the first place to start on a real road building program to increase motor truck efficiency and reduce cost of operation is on the highway bridges. Our bridges are our first and weakest link. All over the country today motor truck loads and speeds are curtailed by weak highway bridges built to carry not to exceed a six-ton moving load.

* * *

To provide for traffic, either present or prospective, four things are necessary. First, our roads must be longer; second, they must be wider; third, they must be thicker; fourth, they must be rigid and even. On main market roads or trunk lines in and around large centers of population at least, we must stop building gravel, water bonded and penetration macadam. While I realize that the financial burden of a better type road cannot be borne by some of the sparsely settled and poorer communities of a state, yet it would seem wise to provide state and federal aid for a greater proportion of the cost, and secure a better type of road. Traffic does not restrict itself to boundary lines to achieve its maximum effectiveness.

* * *

Within reasonable limits, roads should be built for traffic, and traffic should not be fitted to the road surface. The tendency of traffic today is towards wider gauge, greater speeds and heavier loads. Roads built to carry this traffic must, if they are to give service and satisfaction, be built rigid; road shocks must be taken up by springs, pneumatic or cushion tires, shock absorbers and otherwise.

What kind of a road shall we build? Scientific tests and data secured from different sections of the country, as well as cold logic, leads us inevitably to the concrete road; a type which offers least resistance to the easy movement of wheels (like rolling across the floor), a road that is not slippery, a road that is dustless and mudless, a road that is easily and cheaply maintained, and a road that is durable. This is the type of road that we have been developing and building in Wayne County for the past ten years, and we now have over 170 miles in constant and serviceable use. Based upon this experience, I am convinced that the concrete road must be the standard type of roadway in the future, for nothing less than a road as durable as concrete will meet the needs of the future. We have established this fact from actual experience here, until it has become our firm conviction.

It is not enough, however, to merely build the best possible type of roads and bridges to obtain the maximum use of a truck on the highway. Roads should be maintained, lighted and kept free from snow drifts and snow and ice ruts in winter. Here again, the Wayne County Road Commission is proud to number itself among the leaders. All roads under our jurisdiction are constantly patrolled and systematically and continuously maintained.

While we have no funds available for such a purpose, we have carried on a campaign urging townships and the smaller centers of population in and around Wayne County to light the main roads at night, and have met with considerable success in this direction at no direct expense to the county. Any one who motors at night can readily appreciate the desirability of a lighted road, and when the practice becomes general, as it is bound to in time, the usefulness of motor truck transport will very materially increase.

While we have made it a practice since 1912 to keep all roads under our jurisdiction open for travel in the winter as well as in the summer, the importance of this work has not been fully appreciated until forced on the attention of the country at large during the severe weather and heavy snow storms of last winter; more especially when the U. S. Government attempted to transport loaded trucks and passenger cars under their own power to tidewater. No trouble was experienced at any time on Wayne County roads.

Three superintendents who have charge of road construction in the summer are given districts to take care of in winter. They are furnished with snow plows, scrapers, graders and shovels. Each superintendent inspects his district all through the winter. He has lists of men who will turn out for road cleaning work and also lists of team owners. When a big snow storm comes, the three superintendents can get at their work in the shortest possible time, and their gangs are soon attacking the drifts. There is a community spirit among the farmers which prompts them to get out and do their best to make the roads traversable in the fewest hours. Taking care of our roads in this manner not only enables travel to proceed in the usual manner, but is a protection to the road, by preventing snow and ice ruts, thus distributing traffic over the entire roadway instead of in one or two tracks. I am of the opinion that some legislation should be placed on our statute books, at the coming session of the legislature, making the keeping of roads open and safe to travel during the winter months mandatory.

If it is desirable and good business (and I certainly think it is) for the motor truck manufacturer to educate the truck owner and truck user on the best methods to follow in loading, routing and handling a truck; to advocate a uniform cost accounting system; to secure return loads, and the many other features of propaganda which result in benefit, why is it not equally good business to assist the truck owner to get a road on which he can run his truck? I have often been surprised at the apparent lack of knowledge of the need for better roads on the part of the truck manufacturers. National advertising campaigns have been conducted, illustrated by photos showing how good their product is under operation on the poorest kind of highways; large sums of money are paid for circulation in localities where by no possible chance can a sale be made because of lack of anything that might by courtesy be called a road. Part of this effort spent in educating the public through these same mediums on what good roads would do for the community will remove the point of production overlapping demand for the trucks many, many years. Some objection might be raised that this is not the time to start an extensive good roads propaganda campaign, because our first duty is to let nothing interfere with the victorious and speedy termination of the war. In the August issue of *New England Roads*, the leading article presents this phase of the question so much better than I am capable of that I am going to repeat it in part to clinch the proposition that highways are a vital necessity.

"The steel required for an average steel freight car is 25 tons per car. The steel for building a locomotive and its tender weighs 150 tons. The steel used for a two-ton motor truck will average 1½ tons.

"The ton mileage of a freight car per day, figured at the highest point, is 800 ton miles, forty tons average load and twenty miles per day. An easy average for a two-ton motor truck is 200 ton miles, two tons load and one hundred miles per day. There are few two-ton motor trucks that are not loaded to at least two and one-half tons a trip.

"On this basis four two-ton motor trucks can do more work per day than one freight car. Add to this the saving of time, for motor trucks deliver their freight direct from the shipper to the consignee.

"In other words, four motor trucks, requiring six tons of steel for their construction, can do more on short hauls than a freight car which requires 25 tons of steel and which must be drawn by a locomotive that requires one hundred and fifty tons of steel for its construction.

"To build 50,000 steel freight cars, and the 1,250 locomotives necessary to draw them, will require 1,437,000 tons of steel. Only 300,000 tons of steel are necessary to build 200,000 two-ton motor trucks. There is a saving of 1,137,000 tons of steel by the use of motor trucks. This steel so saved can go direct into ships or into munitions work. The time saved by direct delivery of freight by motor truck means millions of dollars saved to manufacturers and purchasers in the course of a year.

"If we use the highways and thus relieve the railroads of the greater portion of their short haul freight the vast expense and lost time of crowded terminals and congestion is saved. Remember, also, that every ton of freight delivered at a railroad terminal must be carried by truck from the factory to the shipping point and from the terminal to the consignee."

Now, I would like to make, if I may, this suggestion in conclusion: That, knowing as you do that your profits depend upon the steady and economic operation of your trucks, and that such operation of your trucks in turn depends almost wholly upon the condition of the roadbed, that it is both your duty and your opportunity to work diligently for durable roads—not good roads merely in the sense that we term good roads, but roads that will last without expensive repairs, roads that will enable you to load your trucks to their full capacity and move the most miles on the least amount of gasoline. This, it seems to me, is equally as important as soliciting tonnage, for, while you secure business on the one hand, you cut down your expense of handling it on the other, and thereby increase your profits.

This viewpoint should be urged on state legislatures, boards of supervisors, members of Congress, in both the House and Senate, and in official Washington generally, by such conferences as this, and by automobile clubs, boards of commerce, real estate boards, truck manufacturers and other good roads organizations. You can emphasize the cost of bad roads by showing how good roads become an investment and not an expense, and I think it is very clear that now is the time of all others when national necessity urges a great program of highway construction.

Latest Statement of Priority Commission Regarding Curtailment of Tractors and Farm Implements

THE priority order affecting farm tractors and other agricultural implements, which the Priorities Commission of the War Industries Board has had under consideration for several weeks, as finally issued, emphasizes once more the seriousness of the situation as to steel and iron for war purposes.

Judge Edwin D. Parker, priorities commissioner, announcing for Chairman Baruch, of the War Industries Board, the ruling as to tractors, etc., comments that "The drive is on. The Time is Now. When the war shall have been won we will plan for the future."

The statement, in part, follows:

Judge Parker thus prefaces a ruling of the Priorities Division of the War Industries Board directed to the agricultural implement and farm operating equipment industry curtailing the consumption of iron and steel by the industry 25 per cent during the year beginning October 1, 1918, over its consumption of iron and steel for the corresponding twelve months beginning October 1, 1917. This will effect a saving in iron and steel for the direct war program of about 500,000 tons.

Special rulings governing the output of farm tractors restricts makers who produced less than ten tractors last year to the production of not more than ten tractors the coming year; makers who produced and had in field operation 10 and less than 50 tractors may not produce over 50 tractors; makers who produced and sold 50 or more tractors will have their consumption of iron and steel reduced 25 per cent.

Signed pledges will be exacted from the manufacturers to use materials on hand that may come into their possession for the manufacture of tractors and farm operating equipment and parts, to reduce the tonnage of iron and steel as directed; to comply with the regulations of the Conservation Division of the War Industries Board as to economies and substitutions; and to produce only the more essential farm operating equipment and parts and to distribute the products only for essential uses. Judge Parker says to the agricultural implement and farm operating equipment industry:

"Yours is clearly not only an essential, but an indirect war industry and will be dealt with as such. The nation must produce a maximum of foods and feeds, but this production must be accomplished with a reduced consumption of materials and labor required to meet the war program. The use of a machine, in the manufacture of which large quantities of material and labor are consumed, may be economically sound and in normal times its manufacture and use should be stimulated; **but if its production at this crisis requires more labor than will be saved in one season's use,** it should—generally speaking—be substituted by other machines or implements in order to accomplish the immediate conservation of labor and materials."

Following is the ruling of the Priorities Division:

Reference herein will be made to periods of twelve months each; that from October 1, 1917, to September 30, 1918, will be designated "First Period." A careful survey of your industry in connection with the urgent war requirements has led to the decision that in the public interest your iron and steel consumption for the "Second Period" should be 75 per cent of your consumption during the "first period," when it approximated 2,000,000 tons of iron and steel. The effect of a release of 25 per cent of your consumption during the past twelve months will be immediately felt on the war program. It is with confidence that the War Industries Board relies upon your indispensable industry lending the same wholehearted and patriotic assistance in accomplishing these economies that it has always rendered in response to previous appeals. While the importance of your industry and your place in the program for the production of food for this nation and its allies can hardly be overstated, yet the supreme concern at this critical period is that every possible contribution be made **immediately** and enthusiastically to the end that the war may be shortened and the victory made decisive.

The necessity of reducing the allotments of iron and steel to your industry places upon you and the Farm Implements Committee the responsibility of so applying the curtailment that your more essential products shall be produced in sufficient quantities to meet all legitimate demands for them and that your less essential products shall be produced in greatly diminished quantities, or not at all. The Priorities Division does not undertake to direct you in the formulation or execution of a program of such responsibility. This is your problem. You are equipped to solve it; and with your experience and ripe judgment you will through team work so adjust your manufacturing program and utilize the curtailed allotment of materials, that the theoretical injury may not prove real.

The plans for curtailment must, among other things, take account of the varying situation of the manufacturers who have been in production for considerable periods as contrasted with those whose production period has been relatively so short that they are still virtually in the experimental stage. To apply to both of such groups an arbitrary percentage tonnage allotment plan would be inequitable.

For your guidance you are advised that the Priorities Division has decided:

(a) That the tractor makers who have produced less than ten tractors during the "First Period" are in the primary experimental stage, and that they are not to produce over ten tractors during the "Second Period."

(b) That the tractor makers who have produced and had in field operation ten or more, and less than fifty, tractors during the "First Period" are in the secondary development stage, and that they are not to produce over fifty tractors during the "Second Period."

(c) That makers of products other than farm tractors whose development situation shall be comparable to those of the tractor makers described in the proceeding paragraphs are to produce according to the same rules.

(d) That the tractor makers who have produced and sold fifty or more tractors during the "First Period" and all other manufacturers of farm operating equipment who are past their primary and secondary development stages will receive during the "Second Period" not exceeding 75 per cent of their consumption of iron and steel during the "First Period."

Metal and Rubber Markets

No Change in Steel Products Prices

The agreement made by the Price-Fixing Committee of the War Industries Board with representatives of the iron ore, pig iron and steel interests has been formally approved by the President. Maximum prices now prevailing on steel products will be continued up to Dec. 31, 1918. No contracts calling for delivery after that date are to specify a price unless coupled with a clause making the price subject to revision by any authorized United States government agency. All manufacturers and producers are expected to observe the maximum prices now fixed.

The labor shortage is still the greatest problem before the manufacturers. The introduction of the eight-hour day by the United States Steel Corp. and other companies is expected to increase the outturn and result in greater efficiency. The Government is endeavoring to meet the shortage on one hand by supplying the manufacturers with labor through the U. S. Employment Service, and on the other by reducing consumption of steel products.

Steel Products Prices

Per ton, Pittsburg—			
Bessemer billets	$47 50	a	....
Open hearth	47 50	a	....
Forging billets	60 00	a	....
Sheet bars	51 00	a	....

Sheets

The following prices are for 100-bundle lots and over f.o.b. mill:

Blue Annealed Sheets—			
Nos. 3 to 8	$4 20	a	....
Nos. 9 and 10	4 25	a	....
Nos. 11 and 12	4 30	a	....
Box Annealed Sheets, Cold Rolled—			
Nos. 17 to 21	$4 80	a	....
Nos. 22 and 24	4 85	a	....
Nos. 25 and 26	4 90	a	....
Galvanized Sheets of Black Sheet Gauge—			
Nos. 10 and 11	$5 25	a	....
Nos. 12 to 14	5 35	a	....
Nos. 15 and 16	5 50	a	....
Nos. 17 to 21	5 65	a	....
Nos. 22 to 24	5 80	a	....
Nos. 25 and 26	5 95	a	....
Tin—Mill Black Plate—			
Nos. 15 and 16	$4 80	a	....
Nos. 17 to 21	4 85	a	....
Nos. 22 to 24	4 90	a	....
Nos. 25 to 27	4 95	a	....

Iron and Steel at Pittsburgh

Bessemer iron	$37 25	a	....
Bessemer steel, f.o.b. Pitts.	47 50	a	....
Skelp, grooved steel	2 90	a	....
Skelp, sheared steel	3 25	a	....
Ferromanganese (70%)	250 00	a	....
Steel, melting scrap	26 25	a	26 50
Steel bars	2 90	a	....
Manganese ore, per unit	1 00	a	....
Wire rods	57 00	a	....
Iron bars	3 50	a	....
Plain wire	3 25	a	....
Plain wire, galvanized	3 95	a	4 85
Cut nails	4 00	a	4 50

Prices of Finished Products

With the price of copper fixed the market for all brass products is firmer, but manufacturers do not quote except on specification, and the following prices for brass and bronze items are nominal:

Sheet aluminum, 18 ga. & heav'r.	$42 00	a	....
Copper sheets, hot rolled	36 00	a	37 50
Copper sheets, cold rolled	37 60	a	38 50
Copper bottoms	44 00	a	45 50
Copper rods	36 00	a	37 00
Copper wire	29 25	a	....
High brass wire	28 75	a	29 50
High brass sheets	28 75	a	29 50
High brass rods	26 75	a	28 75
Low brass sheets	32 50	a	34 50
Low brass wire	32 50	a	34 50
Low brass rods	33 25	a	35 25
Brazed tubing, brass	37 00	a	39 00
Brazed tubing, bronze	42 50	a	44 50
Seamless tubing, brass	37 50	a	39 50
Seamless tubing, copper	41 00	a	43 00
Seamless tubing, bronze	45 00	a	46 00

ALUMINUM.—A base price for aluminum of 33c a pound f.o.b. producing plant for 50 tons and over for ingots of 98 to 99 per cent has been established by the War Industries Board. The price became effective June 1.

GRAPHITE.—The War Trade Board has extended the import restrictions on graphite for the balance of the current year. Present stocks and domestic productions are deemed sufficient to meet market requirements here for the balance of the year. Prices range roughly as follows: Mexican, $75 per ton; Madagascar, 10c to 15c per pound; Ceylon, 7½c to 25c per pound, as to quality.

TUNGSTEN.—High grade ore has been specially active. The supply of ore low in manganese and free from tin and copper is growing harder to find, which makes it difficult to meet specifications for the manufactured metal. High grade Wolframite ranges from $24.50 to $25. High grade Scheelite is almost unobtainable, even at $26 f.o.b.

Prices of Old Metals

The following prices are current for old metals:

	Buying.		Selling.	
Aluminum—				
Cast scrap	22	a23	24	a25
Sheet scrap	26	a27	28	a30
Copper—				
Heavy machinery comp.	21	a22	23	a24½
Heavy and wire	21	a22	23	a23½
Light and bottoms	20	a20½	21	a21½
Heavy, cut and crucible.	22	a23	23	a24½
Brass, heavy	13½	a14	15	a15½
Brass, light	11	a11½	12	a12½
No. 1 clean brass turn'gs,	12	a12½	13½	a14
No. 1 comp. turnings	19	a19½	20	a21
Lead, heavy	7¼a	7½	7¾a	8
Zinc scrap	6¼a	6½	6¾a	7

The buying prices are those which the larger dealers will pay; the selling prices are market quotations.

Rubber Market Steady

The market for crude rubber presents a very quiet appearance at present. There has been some demand for free rubber, but inquiries have brought out few offerings and those of very small quantities. No change has been made in the amount to be imported during the allocation period from October to December. Prices on October 3 were:

Para—Up-river, fine, per lb.	68	a	..
Up-river, coarse	40	a	..
Island, fine	59	a	..
Island, coarse	27	a	..
Caucho, ball, upper	40	a	..
Caucho, ball, lower	36	a	..
Cameta	28	a	..
Ceylon—First latex, pale crepe.	61	a	63
Brown, crepe, thin, clean...	60	a	..
Smoked, ribbed, sheets	59	a	61½
Centrals—Corinto	..	a	39
Esmeralda	..	a	39
Guayule, wet	35	a	..
Guayule, washed and dried.	48	a	..
Balata, sheets	*90	a	..
Balata, block, Ciudad	..	a	75
Balata, block, Panama	59	a	60
Mexican—Scrap	39	a	..
Slab	32	a	..
African—Massai, red	55	a	..
Mosambique—Spindles	59	a	..

SCRAP RUBBER.—The market remains featureless with little demand and no change in quotations.

Tires—Automobile	5½a		5¾
Inner tubes, No. 1	21	a	22
Inner tubes, No. 2	10¾a		11

*Nominal.

Contracts for Solid Tires

The following manufacturers have received orders for solid tires from the Ordnance Department: Firestone Tire & Rubber Co., Akron, Ohio; Indian Tire & Rubber Co., New Brunswick, N. J.; United States Tire Co., New York City; Hood Rubber Co., Watertown, Mass.; Goodyear Tire & Rubber Co., Akron, and B. F. Goodrich Rubber Co., Akron.

Return-Loads Bureau in Omaha

A return loads bureau for the district contributory to Omaha has been formed, with financial support for three months pledged by fifty leading business firms of the city. The office is located at 411-13 South Tenth Street, with C. E. Stallard, formerly chief clerk of the Illinois Central local office, in charge. Several hundred trucks are already engaged in traffic into Omaha.

Mechanical Belt Company Holds Banquet

On Thursday evening, September 19th, a banquet was held at Hotel Sherman by the Mechanical Belt Co., St. Joseph, Mo., in honor of the sales force of the Gray-Heath Co., sales representatives for the Mechanical Belt Co., in the central states. Mr. Hall, general manager of the company, addressed the salesmen, and O. R. Elofson, of the Wm. H. Rankin Co., outlined the advertising campaign for the coming year.

Government Has Standardized Contracts

The form to be used in government contracts has been standardized and will be used by the War Department in making its purchases. All previous forms of contracts in use have been examined and used in compiling the new form. This action was taken to speed up production, protect the Government against fraud, protect labor interests and insure the Government as well as the contractor against legal complications.

EDITORIALS

Lack of Drivers Curtailing Small Trucks

THE exigencies of war involve the movement of enormous quantities of goods. Motor driven vehicles are playing their important part in this transportation field. It is not surprising, however, that owing to the lack of labor, inability to get competent drivers or drivers of any kind, that the Government is frowning on small trucks. There seems to be a tendency toward the use of larger units; a 6-ton truck requiring only the services of one man, the same as a 1500 lb. vehicle.

Although the use of larger units will be the natural result of this stupendous transportation problem and lack of labor while the War continues, yet it is a well-known fact that in many places to use larger trucks would be the worst kind of economy, would actually be inefficient in the extreme. The small truck, therefore, although it may suffer at the present time, will surely weather the gale of the Government's present displeasure.

Especially for retail delivery these small vehicles must be continued in service. They do not carry exceedingly heavy goods, therefore there is no reason why women cannot successfully operate them. This, then, is one solution,—more women drivers of retail commercial cars.

War Developing Gasoline Sources and Methods of Production

FUEL makes the motor go. To the commercial car gasoline is an essential. The gasoline situation is none too favorable. Conservation of fuel must be practiced, at least during the period of the War and perhaps afterwards. Now is the time for the sale of all devices which tend to conserve fuel, such as better filling arrangements for tanks, less loss by leakage, evaporation, or loss by spilling, the use of starters, governors which will prevent racing of the engine, vaporizing devices which will insure complete evaporation of the fuel and its complete burning in the engine, devices that will make it unnecessary to run with an enriched mixture for a long time while the engine is warming up, thermostatic controls, etc., and, above all, proper operation on the part of the driver to conserve fuel.

Lower grades of fuel are and can be used in commercial cars and the tendency in this direction will of course be increased as fuels of higher volatility become scarcer.

The fall outlook, however, is not as gloomy as it might be. The War has caused the opening of many new oil wells which will be productive after the War; has caused the working of shale beds which might otherwise have remained useless for years and which never before were touched or thought sufficiently rich in gasoline to be worth operating. These same shale beds are now also producing by-products of value. By the time the War is over these processes will have been brought to great efficiency and less cost of operation. The new cracking processes are also being rapidly perfected and commercialized, and these plants will be in the future large producers of gasoline at a lower cost. The production of gasoline from natural gas has also taken on new life and activity and this will also supply additional fuel during and after the War.

If we are now able to supply our own needs, and at the same time furnish 98 per cent of the gasoline used by our Allies, there is every indication that after the War our productiveness will be sufficient to ward off any immediate gasoline famine, even if not sufficient to reduce the price very materially.

Dealers Should Handle Trailers

THE tendency toward the use of larger truck units and the necessity for economical hauling is bringing rapidly to the fore the possibilities of road trains and the greater use of trailers in this country. It is not necessary to call the attention of the trade to the extensive use of both road trains and trailers in Europe. This country must follow suit. High-speed truck tractors or road tractors must be developed to be used with two or more trailing vehicles so tired and equipped that they are capable of standing up under speeds of from 8 to 15 miles per hour, according to their carrying capacities.

If the steel market further curtails the production of trucks, or the War needs take more trucks out of civilian use, **trailers must be used with the trucks that are left.** If regular trailers cannot be built on account of lack of materials, staunch wagons that are already available may in some cases be utilized.

The possibilities of the trailer have not yet been brought home to the motor truck using public. Every dealer should investigate trailer possibilities with particular reference to their sale and use in his territory.

Idling the Truck Engine Means Enormous Gasoline Wastage

THERE are many ways in which gasoline can be conserved, and there are many more ways in which it can be wasted. Although the passenger car driver is credited with being responsible for a great deal of the gasoline wastage, he is not to be compared with the truck operator, who wastes practically one-fifth of all the gasoline he pours in the tank. This waste is primarily due to letting the truck engine idle when making stops of extended duration instead of shutting off the engine and cranking up again.

Although this is a broad statement, it is based on actual tests that have been made recently by the Atlantic Refining Company of Philadelphia. These tests were made at various establishments in and around Philadelphia, where a great number of trucks were employed, such as the Hog Island shipyard, a large express company and numerous fleet users. It is a well-known fact that at low throttle the truck engine consumes considerably more gas than if the truck were running at fifteen miles per hour. In many instances the machines are left standing with the engine at idling speed for half-hour periods. According to figures compiled by the above-mentioned company, the average consumption of gasoline for a truck is thirty barrels per year. In Pennsylvania there are about thirty thousand trucks, which figures 900,000 barrels of gasoline per year.

Of this 900,000 barrels, 200,000 barrels are wasted annually!

It is figured that the annual wastage of gasoline in Pennsylvania due to idle running would be sufficient to run all the passenger cars and trucks in that state for one month. The annual wastage of gasoline by gasoline-propelled vehicles throughout the country would be sufficient to purchase $40,000,000 of Liberty Bonds!

Does this not show the necessity of starters on trucks?

Feeding Washington's War Workers by Motor Trucks

Dump a hundred thousand people into an average sized city almost over night, and there develops immediately a feeding problem that calls for considerable thought and some very efficient action. This is practically what happened to Washington when the war began, for the tremendous war program necessitated a corresponding increase in population at the nation's capital as the various departments expanded and new ones were added. Much has been written about the organization of the commissary forces that feed our immense army, but little has been said of the unorganized forces that have, in Washington and other of the nation's chief cities, met the sudden demand put upon them by sudden increases in population.

The answer everywhere is the same answer that has solved many of the most difficult problems met with in this colossal war program—the commercial car.

Hurry up orders for trucks came from almost every big provision house in Washington when the population commenced to grow over night like those old bonanza cities of the golden days.

Armour & Co., for instance, rushed into service three big Packards, a five-ton, three-ton and two-and-a-half-ton. These are in addition to the five-ton Packard and five Autocar trucks they already had in service. Distributing meat products to over 600 separate markets every day calls for some motor trucks. Manager Trewhella swears by the trucks. "Why, we simply couldn't have met the situation with horse-drawn wagons," he says.

Not only have the trucks been used for distribution, they have also, when embargoes threatened, been sent out many miles to get meat from stalled refrigerator cars.

It has been the same with all the big packers, Swift & Co., Wilson & Co., Cudahy and Kingan. Each has added many trucks to care for the big demand for food.

The wholesale grocery companies have all added to their motor truck fleets, and even the small matter of coffee for Washington coffee drinkers (and they have increased wonderfully since the District went dry), means the use of from two to six motor trucks all the time by one concern, the Martha Washington Coffee Co. Others have increased also.

The Old Dutch Market fleet, familiar to every one who travels Pennsylvania Avenue any time of day, is busy from morning till night, and one of its big enclosed body trucks brings over 90,000 lb. of fresh meats every week from the company's packing house at Frederick, Md.

Farmers within a radius of twenty miles of Washington bring tons upon tons of farm produce to the city's markets several times a week in their trucks, making the trip now in an hour that used to take them half a day, with the old horse.

Truly, Washington would be hard hit if its motor trucks were suddenly taken away, and food distribution would suddenly become a tremendous problem. Washington motor truck dealers have reaped a rich harvest because of war conditions and have supplied the demand in a way that reflects credit on their methods.

Wrench Makers Adopt War Program

The manufacture of regular finished wrenches, as well as a large number of other wrenches which are considered unnecessary by manufacturers of drop-forged wrenches, will be discontinued for the period of the war. Semi-finished wrenches may also be eliminated, and a war finish substituted. Engineers' wrenches, check nut wrenches, light cap screw wrenches, hexagon box wrenches, square box wrenches, flat handle "S" wrenches, set-screw wrenches, tool post wrenches, singlehead socket wrenches, spanner wrenches, construction wrenches, structural wrenches, round handle track wrenches, car wrenches and light service wrenches are considered essential and their manufacture will be continued.

Further plans for conservation include the elimination of sample and display boards for advertising, and a ruling that wrenches will no longer be packed in separate envelopes and all-wooden boxes.

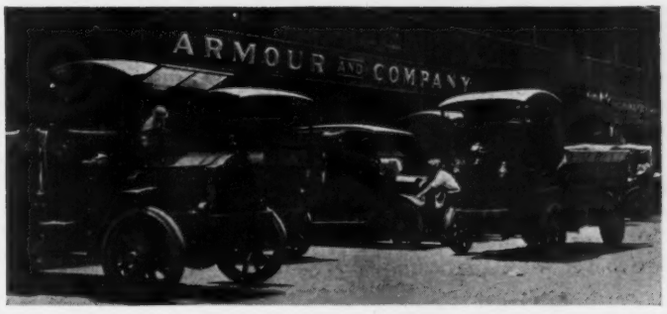
F. Royal Hammett Dies After Short Illness

F. Royal Hammett, vice-president and general manager of the Crew Levick Co., Philadelphia, Pa., died recently. Mr. Hammett joined the Crew Levick Co. in 1904, after graduating from the University of Pennsylvania. His father, Frederick W. Hammett, was one of the founders of the oil refining company.

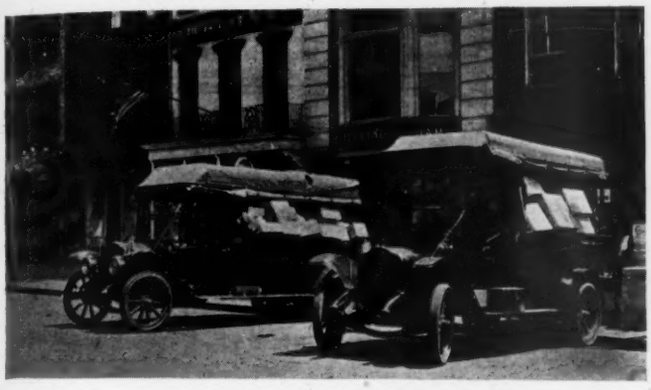
Owen A. Lazenby Co., 611 Julia St., New Orleans, La., has been assigned the agency for Sewell cushion wheels in Louisiana.

Some of the Commercial Cars That Helped to Feed Washington's Rapidly Increasing Population

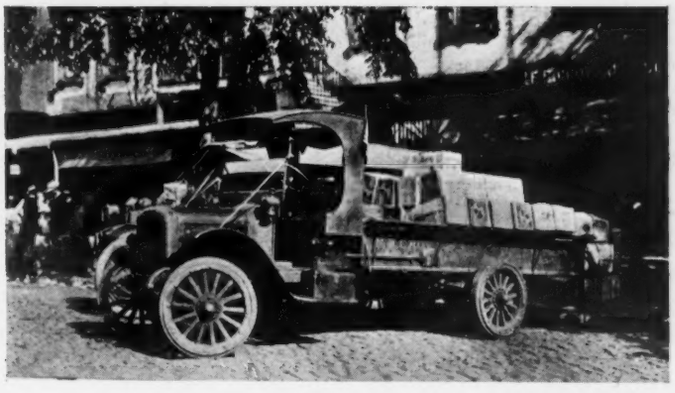
Wilson & Company Use a Fleet of Autocars for Meat Distribution



Trucks Are Coming and Going All Day Long at Armour's



White Trucks Distribute Provisions for the Shea Grocery Company



F. B. Crovo & Company Distribute Provisions With a Republic

Trucks Like These Carry About Ninety Thousand Pounds of Meat Weekly From Frederick, Md., to Washington

Washington Has Many Camps in and Around the City. A Pierce-Arrow Getting Supplies for the White House Guards

Coffee Dealers Say Washington Drinks Much More Coffee Since the District Went Dry

This Big Mack Truck Carries Provisions From Philadelphia, Baltimore and Wilmington to Washington

Who's Who in Washington War Work

Organization of Government Committees With Which the Automotive Industry is Concerned

Council of National Defense

Secretary of War, Chairman.
Secretary of Navy.
Secretary of Interior.
Secretary of Agriculture.
Secretary of Commerce.
Secretary of Labor.
Walter S. Gifford, Director.
Grosvenor B. Clarkson, Secretary.

Advisory Commission

Under the act creating it the commission acts as a body for research and investigation, and is charged with the co-ordination of industries and resources, for the national security and welfare, and with the creation of relations, which will render possible, in the time of need, the immediate concentration and utilization of the resources of the nation.

Daniel Willard, President, B. & O. R. R., Chairman.

Howard E. Coffin, vice president, Hudson Motor Car Co.

Julius Rosenwald, president, Sears, Roebuck Co.

B. M. Baruch, banker.

Dr. Hollis Godfrey, president, Drexel Institute.

Samuel Gompers, president, American Federation of Labor.

Dr. Franklin Martin, Secretary of Gen. American College of Surgery.

Walter S. Gifford, Director.

Grosvenor B. Clarkson, Secretary.

War Industries Board

This board is sort of a clearing house for the various committees which are in close touch themselves with the manufacturers of all kinds of war materials. It does not deal directly with the Automobile Industry, but acts through the National Automobile Chamber of Commerce.

B. M. Baruch, Chairman.

Rear Admiral Frank A. Fletcher, Navy.

Brig. Gen. Hugh S. Johnson, Army.

Hugh Frayne, labor.

Col. Palmer E. Pierce.

R. S. Brookings, Chairman Price Fixing Committee.

J. L. Replogle, steel.

C. C. Hanch, automotive products.

D. C. Fenner, Asst.

Judge E. B. Parker, Priorities Committee.

G. N. Peek, finished products.

L. L. Summers, technical advisor.

Alexander Legge, vice chairman.

H. P. Ingels, secretary.

Judge Albert C. Ritchie, Gen. Counsel.

Priorities Committee

Matters relating to priorities should be taken up by correspondence or interview with the secretary first, who will then refer you to the proper member of the committee.

Judge E. B. Parker, Priorities Commissioner.

C. K. Foster, vice chairman; public utilities, other than steam railroads, street and interurban railways, light and power plants, water works, highways, wharves and docks, electrical energy, turbines and large electrical equipment.

Maj. Gen. A. B. Aleshire, Army work other than ordnance.

George Armsby, Agricultural Implements; food products and containers, mining equipment, pig tin, tin plate.

H. H. Barbour, iron and steel products, sub committee on rating.

E. L. Crawford, co-ordination member, representing finished products division.

C. P. Howland, Emergency Fleet; controversies growing out issuance of priorities certificates.

F. G. Macpherson, all incomplete applications, and correspondence relating thereto, sub-committee on rating.

Rear Admiral N. E. Mason, Ordnance for U. S. Navy; co-ordinating member representing Navy, requirements of Allies.

Col. C. A. McKenny, Ordnance for U. S. Army; co-ordinating member representing Army General Staff.

Everett Morse, copper, wire rope, woolen and cotton goods, tubing, etc.

L. P. Ordway, oil-well and gas machinery, abrasives, lumber, etc.; sub-committee on rating.

T. C. Powell, railroad equipment and supplies, representative of Railroad Administration.

Rear Admiral A. V. Zane, Navy work other than ordnance.

Maurice Hirsch, secretary to the committee.

Price-Fixing Committee

Robert S. Brookings, Chairman.

B. M. Baruch, Chairman, War Industries Board.

Hugh Frayne, Labor Representative, W. I. B.

H. A. Garfield, Fuel Administrator.

Ex-Gov. H. C. Stuart, agriculture.

Lt. Col. R. H. Montgomery, Army Representative.

Commander J. M. Hancock, Navy Representative.

W. B. Colver, Chairman, Federal Trade Commission.

Dr. F. W. Taussig, Chairman, Tariff Commission.

W. W. Phelps, Secretary.

Requirements Division

Alexander Legge, Chairman.

B. M. Baruch, ex-officio.

Judge E. B. Parker, Priorities.

G. N. Peek, finished products.

J. L. Replogle, steel.

L. L. Summers, technical advisor.

C. H. McDowell, chemicals.

Pope Yeatman, non-ferrous metals.

Col. G. H. Estes, Army Representative.

Adm. C. J. Peoples, Navy Representative.

Capt. M. N. Taylor, Navy Representative.

Maj. Seth Williams, Marine Corps Representative.

G. M. Brill, Emergency Fleet Representative.

T. F. Whitmarsh, Food Administration Representative.

M. B. Poole, Red Cross Representative.

C. T. Powell, Railroad Administration Representative.

P. B. Noyes, Fuel Administration Representative.

J. A. Carr, Representing the Allies.

James Ingels, Executive Secretary.

Conservation Division

Its function is "the studious conservation of the resources and facilities, by means of scientific, commercial and industrial economies." Plans for eliminating the non-essential uses of labor, material, equipment and capital are being put into effect by this board in many industries. At the suggestion of the division, the War Service Committee of Automobile Dealers drew up a program for saving labor and materials in their business. The Committee decides on the details of the program, however, and is putting it into effect, without any action being taken by the Division. The Conservation Division is entirely in sympathy with the general purpose of the educational campaign being conducted by the W. S. C. of A. D. The Division in continuing its work with retail stores to secure economy in delivery services, and merchants in many parts of the country have put the Division's program into effect. With the co-operation of the War Service Committee of the Rubber Industry a program for the standardization of automobile tires has been worked out. This division assumed charge of the work of the Commercial Economy Board on May 8th, 1918.

A. W. Shaw, Chairman.

M. T. Copland, Secretary.

Automotive Products Section

This section has jurisdiction over the following line of automotive material, including combustion engines and their application, their accessories, parts, etc. With the exception of agricultural tractor, stationary and portable engines, for agricultural purposes; motorcycles, sidecars, motor cars, motor ambulances, motor trucks, motor truck bodies, motor truck tractors, motor truck trailers, armored cars, military tractors, military tanks, airplane engines, marine gas engines, stationary gas engines and automotive accessories and parts.

This section also passes upon the purchases of automotive materials for the Allied Governments, and their allocation to the different concerns.

Application for priorities certificates covering automotive materials are referred by the Priorities Committee to this section for advice and recommendation.

C. C. Hanch, Chief.

D. C. Fenner, Assistant.

Aircraft Board

Fourth and Missouri Ave.

This committee should be communicated with in the first instance in regard to any matter pertaining to airplanes, etc. There are many departments dealing with materials, supplies, etc., located at the Signal Corps, Aviation Section office at 119 D St.

J. D. Ryan, Chairman.

R. F. Howe.

W. C. Potter.

Maj. Gen. W. M. Kenly.

E. A. Deeds.

Col. R. L. Montgomery.

Rear Adm. D. W. Taylor.

Capt. N. E. Erwin.

Lt. Com. A. C. Atkins.

Capt. H. M. Darling, Act. Secretary.

National Automobile Chamber of Commerce

Second National Bank Building,
509 Seventh St.

Hugh Chalmers, Vice-President of the N. A. C. C., is acting as Washington representative of the N. A. C. C. members. A staff consisting principally of engineers is assisting Mr. Chalmers in giving information to automobile manufacturers in connection with Government work. Alfred Reeves, Gen. Mgr. of the N. A. C. C., spends a large part of his time in Washington, in connection with the various interests of the automobile industry.

Highways Transport Committee

944 Munsey Bldg.

This committee was appointed by the Council of National Defense, to assist in making most efficient use of highways as one of the means of strengthening the Nation's transportation resources. The most important policies thus far adopted are: (1) To increase highways transport resources, and curtail waste by eliminating the running of vehicles empty. Return Load Bureaus have been established for this purpose. (2) To make more food available and save farm labor for work on farms. Rural Motor Truck Express routes for agricultural areas to consuming centers or important shipping points are advocated. (3) To make highway transportation more economical and effective by encouraging the use of power driven vehicles. Such vehicles conserve man power and increase transport capacity, and their general use is therefore endorsed. (4) To assist the Railroad Administration in the elimination of the terminal congestion. Development of the "Store-Door-Delivery" plan will provide terminals with this relief.

Roy D. Chapin, Chairman.
G. H. Pride.
H. G. Shirley.
R. C. Hargreaves, Secretary.

Advisory to Highways Transport Committee

Raymond Beck.
Thomas D. Knight.
T. D. M. Cardeza.
C. A. Musselman.
C. W. Reid.

Motor Truck Committee of the N. A. C. C.

This Committee was organized for the purpose of co-operating with the Highways Transport Committee, in matters pertaining to motor truck haulage, and to give to builders of motor trucks of the United States such assistance as they may call for. It carries the authority of the N. A. C. C.

George M. Graham, Chairman.
W. T. White.
M. L. Pulcher.
David Ludlum.
D. C. Fenner.
S. A. Miles, in charge of rural motor delivery feature of the committee's activities.

United States Highway Council

All functions of Government agencies relating to streets and highways are coordinated in this body to eliminate delays and uncertainty incident to taking up each problem with a separate department of the Government.

L. W. Page, Department of Agriculture, Chairman.
Lt. Col. W. D. Uhler, War Department.
C. G. Sheffield, Fuel Administration.
R. L. Humphrey, W. I. B.
G. W. Kirtley, Railroad Administration.
J. E. Pennypacker, Secretary.

Motors Division, Quartermaster Corps

This division procures motorized vehicles for the Motor Transport Corps.

Col. Fred Glover, Chief.
Maj. Guy Hutchinson, Executive Officer.
Col. E. S. George, Assistant Chief.
Maj. A. H. Zacharias, Production Assistant.
Maj. C. S. Dahlquist, Technical Assistant.

Procurement Branch

Maj. A. H. Browne, A and B trucks.
Capt. A. C. Keleher, Militor trucks.
Maj. W. T. Fishleigh, AA trucks, ambulances, automobiles.
Maj. R. Miller, Jr., special vehicles, motorcycles, bicycles.
Guy Morgan, spare parts, accessories, tires.
P. W. Tracy, trailers.
James Morrison, bodies.
Lt. W. J. Kennedy, orders.
D. F. Hess, priorities.
Capt. E. P. Hangliter, gauges.

Administrative Branch

Capt. S. P. Dean, Chief.
Capt. A. D. Stansell, Office Control.
W. A. Dickey, Personnel.
D. G. Blair, Clearances.
A. G. Drefs, Finance and Statistics.
Capt. H. M. Lowy, Trucks.

District Offices

Maj. M. B. Edgerton, Chicago.
Capt. D. S. Devore, Cleveland.
Maj. E. L. Jaco, New York.
Maj. G. D. Wilcox, Detroit.

Motor Transport Corps

Seventh and B Sts.

This Division has charge of engineering, operation and maintenance of all motor vehicles except tanks, caterpillars and other artillery tractors, for all divisions of the United States Army in this country, as well as overseas. Also supervises maintenance, operation and inspection of motor-driven vehicles, motor repair shops and garages.

Col. C. B. Drake, Director.
Col. J. F. Furlow, Asst. Director.
Col. C. Seamon, Asst. Director.

United States Railroad Administration

W. G. McAdoo, Director General.
Regional Directors:
A. H. Smith, Eastern Territory, Grand Central Terminal, New York City.
N. D. Maher, Pocahontas Region, Roanoke, Va.
B. L. Winchell, Southern Division, Healey Bldg., Atlanta, Ga.
R. H. Aishton, Northwestern Territory, 226 W. Jackson Blvd., Chicago, Ill.

Division of Capital Expenditure. United States Railroad Administration

Robert S. Lovett, Director.

United States Employment Service. Department of Labor

Main Office, 916 16th St., N. W.,
Washington, D. C.

John B. Dinsmore, General Director.
C. T. Clayton, Asst. Gen. Dir.
N. A. Smyth, Act. Asst. Dir. Gen., Sec. of Policies and Planning Board, Chief Common Labor Section.
T. B. Powderly, Chief, Division of Information, Administration and Clearance.
M. A. Coykendall, Chief, Division of Farm Service.
W. E. Hall, Chief and National Director of Public Service Reserve and Boys' Working Reserve.
R. W. Babson, Chief, Division Inquiry and Education.
I. W. Litchfield, Chief, Clearance Section (Skilled Labor).
S. W. Mason, Chief Clerk.
James L. Hughes, Asst. to Dir. Gen.

District Superintendents

District 1—H. A. Stevens, 53 Canal St., Boston, Mass.
District 2—J. R. O'Leary, 22 E. 22nd St., New York City.
District 3—J. C. Saylor, Old Federal Bldg., Wilmington, Del.
District 4—J. W. Reynolds, Cleveland, Ohio.
District 5—Ralph Izard, 810 E. Main St., Richmond, Va.
District 6—Cliff Williams, Meridan, Miss.
District 7—P. L. Prentis, 116 N. Dearborn St., Chicago, Ill.
District 8—C. C. Kavanaugh, Little Rock, Ark.
District 9—James O'Rilly, 406 Metropolitan Life Bldg., Minneapolis, Minn.
District 10—A. L. Barkman, Kansas City, Kans.
District 11—H. W. Lewis, Smithville, Texas.
District 12—W. T. Boyce, Claus Spreckles Bldg., San Francisco, Cal.
District 13—E. C. Snyder, First Ave. and Main St., Seattle, Wash.

SERVICE BUREAU
OF THE
COMMITTEE ON PUBLIC INFORMATION

FIFTEENTH AND G STREETS
WASHINGTON, D. C.

Information available as to Officials, Functions, and Location of all Government Departments

Regional Chairman Coolidge Appoints Committee

Although only recently appointed, J. Randolph Coolidge, Jr., regional chairman for Massachusetts, Maine, New Hampshire, Vermont and Rhode Island, is carrying out the organization plans of the Highways Transport Committee. The committee for Vermont has been appointed as follows:

John E. Gale, chairman, Brattleboro.
Harvey W. Varnum, Montpelier.
George E. Chalmers, Rutland.
George E. Whitney, Burlington.
A. J. Cooper, Bennington.
Robert Meech, White River Junction.
A. R. Brooks, St. Johnsbury.

The committees for Maine, New Hampshire and Massachusetts have not as yet been organized, but will be very shortly. Mr. Coolidge is giving consideration to a number of candidates for the position of chairman, and conferences will follow the appointments. When the organizations are perfected New England will be effectually linked with Connecticut and New York and greater efficiency is expected in the operation of the Return Loads plan.

Latest Prices of Various Capacities of Gasoline and Electric Commercial Cars—Gasoline and Electric Truck-Tractors Included

This list gives the latest price of each model produced by the manufacturers of Commercial Cars, corrected up to the 1st of each month preceding date of issue. *New prices in this issue are in bold-face type.*

The last column of figures gives the date and page of previous issues of the Commercial Car Journal in which complete specifications are given. Unless otherwise noted, the month given is within the last year. In the department of "New Commercial Cars" page, will be found particulars concerning new models or changes in specifications occurring during the month.

Car and Model	Price	Specifications
Acason		
1½-ton	$2500	Feb. -25
2-ton	2850	Feb. -27
3½-ton	3700	Feb. -33
5-ton	4700	Feb. -37
Acme		
1-ton	1950	Feb. -23
2-ton	2750	Feb. -27
3½-ton	3650	Feb. -33
4-ton	4050	Nov. -27
All-American		
AA, 1-ton	1295	Sept. -33
American		
2½-ton	3250	Feb. -33
3½-ton	3750	
5-ton	4750	
Armleder		
2-ton	2900	Jan. -37
3½-ton	3850	Jan. -43
Atterbury		
1½-ton	2575	Jan. -35
2-ton	2975	Jan. -37
2-ton long w. b.	3075	
3½-ton	3875	Jan -43
3½-ton long w. b.	3975	
Autocar 21F		
2-ton	2050	Jan. -37
Available		
1-ton	2250	Feb. -23
2-ton	2950	Feb. -27
3½-ton	4200	Feb. -33
5-ton	4900	Feb. -37
Beck C.		
A, 1-ton	1350	Feb. -27
B, 1½-ton	1750	Feb. -27
C, 2-ton	2150	Feb. -27
D, 2½-ton	2500	Feb. -27
Bell		
G, 1200 lb.	995	Jan. -30
Bessemer		
G, 1-ton	1495	Jan. -31
H, 1½-ton	1940	
J, 2-ton	2490	Jan. -37
K, 3½-ton	3450	Jan. -43
Bethlehem		
1½-ton	1765	Aug. -58
2½-ton	2165	Aug. -58
3½-ton	3265	Aug. -58
Blair		
C, 2-ton	2850	Jan. -37
D, 3-ton	3250	Jan. -41
Brinton		
H, 1-ton	1500	Jan. -31
F, 2½-ton	**3000**	Jan. -41
Brockway		
J2, 1½-ton	**2600**	Jan. -35
K3, 2-ton	**3000**	Jan. -37
R, 3½-ton	**3900**	Jan. -43
Champion		
1000 lb.	975	Jan. -29
Chase		
T, ¾-ton	1500	Feb. -30
A, 1-ton	1725	Feb. -30
C, 1½-ton	2025	Feb. -30
B, 2½-ton	2475	Feb. -30
X, 3-ton	2800	Feb. -30
O, 3½-ton	3600	Feb. -30
Chevrolet		
1-ton	1225	Feb. -23
1-ton Express	**1345**	
Clydesdale		
45, 1½-ton	**2575**	Jan. -35
65, 2-ton	**2975**	Jan. -37
90, 3½-ton	3950	Jan. -43
120, 5-ton	**4975**	Jan. -45
Collier		
15, 1500 lb.	985	Jan. -31
Columbia		
E, 2-ton	2275	Feb. -27
Comet		
1¼-ton	**1575**	Feb. -23
Commerce		
E, 1-ton	1450	Feb. -23
Concord		
1½-ton	**$2350**	Jan. -31
2½-ton	**2850**	Jan. -37
Conestoga		
1800 lb.	**1350**	Jan. -30
¾-ton	**1150**	
1½-ton	**2250**	
Corbitt		
E, 1-ton	2000	Jan. -33
D, 1½-ton	2400	Jan. -35
C, 2-ton	3000	Jan. -37
B, 2½-ton	3200	Jan. -41
A, 3½-ton	4000	Jan. -43
AA, 5-ton	4500	Jan. -45
Coriiss		
1000 lb. Chassis	715	Feb. -20
Dart		
E, 1-ton	**2100**	Feb. -23
CC4, 2-ton	**2900**	Feb. -29
L, 3½-ton	**4000**	Feb. -33
Day-Elder		
J, 1-ton	1045	Jan. -33
A, 1½-ton	1775	Jan. -35
B, 2-ton	2075	Jan. -39
C, 3-ton	2750	Jan. -43
5-ton	4500	Apr. -53
Defiance		
1½-ton	1795	Jan. -35
De Kalb		
E2, 2-ton	2100	Feb. -29
2½-ton	2600	Feb. -31
De Martini		
A17W, 1-ton	2250	Feb. -23
C17W, 2-ton	2750	Feb. -29
E17W, 3-ton	3650	Feb. -32
G17W, 4-ton	4250	Feb. -37
Denby		
12, 1-ton	1650	Feb. -23
13, 2-ton	2350	Feb. -29
15, 3-ton	2775	Feb. -32
210, 5-ton	4900	Sept. -
Diamond T		
J5, 1-ton	2125	Feb. -23
I4, 1½-ton	2550	Feb. -25
J3, 2-ton	2925	Feb. -29
LB, 3½-ton	4150	Feb. -33
R, 5-ton	4950	Feb. -37
Dispatch		
G, 1500 lb. Chassis	1200	Feb. -21
Dodge		
1000 lb.	**1085**	Feb. -20
Dorris		
K4, 2-ton	2985	Feb. -29
Double Drive		
1½-ton	2500	May -49
3-ton	4000	May -49
Douglas		
1½-ton	2000	
Dumore		
1000 lb.		Feb. -20
Duplex		
E, 3½-ton	4000	Feb. -33
Durable		
B2-18, 1½-ton.	2040	Aug. -61
Fageol		
2-ton	3300	Feb. -29
3½-ton	4250	Feb. -29
5-ton	5100	Feb. -29
Famous		
¾-ton	725	
1-ton	950	
1½-ton	1190	
2½-ton	1825	
Fargo		
P, 2-ton	2200	Feb. -29
Federal		
S, 1-ton	1900	Feb. -23
T, 1½-ton	2350	Feb. -25
U, 2-ton	2600	Feb. -29
W, 3½-ton	3350	Feb. -33
X, 5-ton	4400	Feb. -37
Ford		
T, 1-ton	550	Feb. -23
Four Wheel Drive		
B, 3-ton	4600	Feb. -32
Fulton		
FX, 1½-ton	$1620	Jan. -35
Garford		
75C, 1-ton	2500	Jan. -33
66B, 1½-ton	3000	Jan. -35
66BL, 1½-ton	3100	
70B, 2-ton	3300	Jan. -39
70BL, 2-ton	3400	
77B, 3½-ton	4300	Jan. -43
77BL, 3½-ton	4400	
68, 5-ton	5000	Jan. -45
68L, 5-ton	5100	
69, 6-ton	5300	Jan. -46
69L, 6-ton	5400	
G. M. C.		
16, 1500 lb.	1775	Feb. -21
21, 1-ton	2125	Feb. -23
1½-ton	2500	Feb. -25
2-ton	2800	Feb. -29
3½-ton	3900	Feb. -33
5-ton	4500	Feb. -37
Geneva		
B, ¾-ton	700	
C, ¾-ton	750	
Gersix		
G, 2½-ton	2850	Feb. -31
Giant		
1-ton	1850	Feb. -23
2-ton	2850	Feb. -29
3½-ton	3850	Feb. -29
Globe		
A1, 1-ton	1490	Feb. -23
B, 1½-ton	1850	Feb. -25
C, 2-ton	2190	Feb. -29
CC, 2-ton	2290	
Gramm-Bernstein		
1½-ton	2450	Jan. -35
2½-ton	3300	Jan. -41
3½-ton	4000	Jan. -43
5-ton	5000	Jan. -45
Grant		
12, ¾-ton	1125	Jan. -33
10, 1½-ton	1540	Jan. -35
15, 2-ton	1850	Jan. -39
Hall		
2-ton	2675	
3½-ton	3500	
5-ton	4500	
5-7-ton	4500	
Harvey		
WFA, 2½-ton	2850	Feb. -31
WHA, 3½-ton	3850	Feb. -35
WKA, 5-ton	4600	Feb. -37
Hatfield		
K, 800 lb.	940	Jan. -28
Hawkeye		
K, 1½-ton	1900	Feb. -27
L, 2-ton	2500	
Hendrickson		
G, 2-ton	**2850**	Feb. -29
H, 3½-ton	**3650**	Feb. -35
Higrade		
A17, ¾-ton to 1750 lb.	1850	Jan. -33
A18, 1-ton to 2250 lb.	**2100**	
Hoover		
2250 lb.	**2250**	Jan. -33
Hurlburt		
1½-ton	2600	Jan. -35
2-ton	3500	Jan. -39
3½-ton	4150	Jan. -43
5-ton	5000	Jan. -45
7-ton	6500	Jan. -47
Independent		
1-ton	**1485**	Apr. -51
2-ton	2250	Apr. -51
International		
H, 1500 lb.	1550	Feb. -21
F, 1-ton	1850	Feb. -23
F, 1-ton long w. b.	1900	
K, 1½-ton	$2200	
K, 1½-ton long w. b.	2250	
G, 2-ton	2600	
G, 2-ton long w. b.	2650	
Jones		
1-ton	1395	Jan. -59
Jumbo		
2½-ton	2250	Apr. -52
Kelly-Springfield		
K31, 1½-ton	2750	Jan. -35
K32, 1½-ton	2750	Jan. -35
K35, 2½-ton	3250	
K36, 2½-ton	3250	Jan. -41
K40, 3½-ton	4250	Jan. -43
K45, 4-ton	4400	Jan. -44
K50, 5-ton	4900	Jan. -45
P60, 6-ton	5200	Jan. -46
Kissel		
General Utility	2073.50	Feb. -25
Freighter	2832.50	Feb. -29
Heavy Duty	3905.00	Feb. -35
Dreadnaught	4785.00	
Kleiber		
AA, 1-ton	**2400**	
A, 1½-ton	2650	Feb. -26
BB, 2-ton	2950	Feb. -28
B, 2½-ton	3500	Feb. -30
C, 3½-ton	4100	Feb. -34
D, 5-ton	5100	Feb. -34
Koehler		
1¼-1½-ton	1450	Jan. -33
Lane		
G, 1½-ton	2250	June -28
H, 2-ton	2850	June -28
K, 3½-ton	3700	June -28
D, 3½-ton	3700	Feb. -35
Lange		
B, 2-ton	**2900**	Jan. -28
Larrabee-Deyo		
M, 1-ton	1950	Jan. -33
N, 1½-ton	2450	
O. P., 2½-ton	3000	Jan. -41
A, 3½-ton	3950	Jan. -43
T, 5-ton	4750	
Lippard-Stewart		
1500 lb.	1900	Jan. -31
1-ton	2250	Jan. -33
1½-ton	2850	Jan. -35
2-ton	3050	Jan. -39
Luverne		
2-ton	1700	
Maccar		
L, 1½-ton	2550	Jan. -35
H, 2½-ton	3100	Jan. -41
M, 3½-ton	4000	Jan. -43
U, 5½-ton	5000	Jan. -45
Mack		
1-ton	2400	
1½-ton	2800	Jan. -33
2-ton	3000	Jan. -35
3½-ton	4600	Jan. -39
5½-ton	5250	Jan. -45
7½-ton	5500	Jan. -47
Manly		
30, 1½-ton	2050	
40, 2-ton	2350	
50, 2½-ton	2800	
60, 3-ton	3150	
Master		
M, 2-ton	2390	Feb. -35
O, 2-ton long w. b.	2490	Feb. -35
W, 2-ton worm drive	2590	Feb. -35
WL, 2-ton worm drive, long w. b.	2690	Feb. -35
3½-ton	3890	Feb. -35

Car and Model	Price	Specifications
Maxwell		
1-ton	$1085	Feb. -23
Menominee		
1-ton	1775	Feb. -23
H, 1½-ton	2290	Feb. -27
D, 2-ton	2715	Feb. -29
G, 3½-ton	3580	Feb. -35
J, 5-ton	4540	Feb. -37
Moreland		
1-ton	2175	
1½-ton	2930	Feb. -27
2½-ton	3500	Feb. -31
4-ton	4500	
5-ton	5000	Feb. -37
Muskegon		
20, 2-ton	2325	Feb. -29
Nash		
2018, 1-ton	1650	Feb. -23
3018, 2-ton	2175	
Quad, 2-ton	3250	Feb. -29
Nelson		
1-ton	2000	Feb. -23
2-ton	2775	Feb. -29
3-ton	3750	Feb. -32
5-ton	4750	Feb. -32
Netco		
2-ton	2800	Jan. -39
New York		
M, 1½-ton	2600	
N, 2-ton	2800	
Noble		
NW, 2-ton	2675	Feb. -29
Northwestern		
W2, 2-ton	2950	
Old Hickory		
1500 lb.	995	Jan. -31
Oneida		
A, 1-ton	2290	Feb. -23
B, 1½-ton	2650	Feb. -27
C, 2-ton	3000	Feb. -31
D, 3½-ton	3700	Feb. -35
E, 5-ton	4750	
Overland		
800 lb. Panel	1045	Jan. -28
800 lb. Express	1025	Jan. -30
1200 lb.	1150	Jan. -30
Packard		
1E, 1-ton	2650	Feb. -27
1½E, 2-ton	3000	Feb. -31
2E, 2½-ton	3400	Feb. -31
3E, 4-ton	4100	Feb. -37
4E	4450	
5E, 6-ton	5150	Feb. -38
6E	5400	
Palmer		
1-ton	1685	Feb. -24
2-ton	2495	Feb. -31
Panhard		
1-ton	1195	Feb. -24
1½-ton	1395	Feb. -27
Parker		
2-ton	3150	May -54
3-ton	3700	May -54
4-ton	4250	May -54
5-ton	5000	May -54
Peerless		
4-ton	4150	Jan. -45
5-ton	4700	Jan. -46
6-ton	5200	Jan. -46
Pierce-Arrow		
2-ton	3750	Jan. -39
5-ton	5500	Jan. -45
Rainier		
R-1, 1000 lb.	1250	Jan. -29
R2, 1500 lb.	1350	
R4, 1-ton	1595	Jan. -33
R6, 3000 lb.	1890	
Rennoc		
2½-ton	2895	May -52
Reo		
F, 1500 lb.	1350	Feb. -21
Republic		
Dispatch, 1500 lb.	$1095	Feb. -21
Sp., 2000 lb. Max.	1295	Feb. -21
10, 1-ton	1485	Feb. -24
11, 1½-ton	1775	Feb. -27
12, 2-ton	2150	Feb. -31
T, 3½-ton	3450	Feb. -35
V, 5-ton	4750	Feb. -37
Reya		
A-18, 1500 lb.	995	Jan. -31
Riker		
3-ton		Jan. -41
4-ton		Jan. -44
Rowe		
2-ton	3000	Jan. -39
2½-ton	3250	Jan. -41
3½-ton	3800	Jan. -43
5-ton	4900	Jan. -43
Rush		
F, 1000 lb.	895	Jan. -29
Sandow		
G, 1-ton	2050	Feb. -24
CG, 1¼-ton	2250	
H, 1½-ton	2550	Feb. -27
J, 2-ton	3250	Feb. -31
K, 3½-ton	4250	Feb. -35
L, 5-ton	4950	
Sanford		
W25, 2½-ton	3000	
W35, 3½-ton	3975	Jan. -43
W50, 5-ton	4750	
Schacht		
2-ton	3150	Jan. -39
2½-ton	3500	Jan. -41
3½-ton	3950	Jan. -43
Selden		
TXL, 1-ton	1900	Jan. -33
TWL, 1-ton	2100	
JCB, 2-ton	2750	Jan. -39
JWB, 2-ton	2950	
NL, 3½-ton	3650	Jan. -43
DL, 5-ton	4950	Jan. -46
Service		
220, 1-ton	2100	Feb. -24
240, 2-ton	3000	Feb. -31
270, 3½-ton	3900	Feb. -35
275, 3½-ton	4200	Feb. -35
300, 5-ton	5000	Feb. -37
Signal		
F, 1¼-ton	2400	Feb. -25
H, 1½-ton	2700	Feb. -27
J, 2½-ton	3100	Feb. -31
M, 4-ton	4100	Feb. -37
R, 5-ton	5100	Feb. -37
Standard		
70, 2-ton	2800	Feb. -31
65, 3½-ton	3675	Feb. -35
85, 5-ton	4650	Feb. -37
Stewart		
6, 1500 lb.	950	Jan. -31
8, 1-ton	1575	Jan. -33
9, 1½-ton	1975	Jan. -35
7, 2-ton	2575	Jan. -39
Studebaker		
SF, 1000 lb.	1045	Feb. -20
1-ton	1400	Feb. -24
Sullivan		
F, 1½-ton	2350	Jan. -35
E, 2-ton	2850	Jan. -39
Superior		
A, 1-ton	1600	Jan. -33
C, 2-ton	2200	Jan. -39
Tiffin		
A, 1500 lb.	1100	Jan. -31
GW, 1½-ton	2075	Jan. -35
MW, 2½-ton	2750	Jan. -41
PW, 3½-ton	3600	Jan. -44
RW, 5-ton	4650	Jan. -46
SW, 6-ton	4850	Jan. -46
Titan		
3½-ton	$4300	
5-6-ton	5150	Feb. -37
Trabold		
TJ, 1-ton	1200	Jan. -33
Traffic		
4000 lb.	1195	July -42
Triangle		
1½-ton	2185	Apr. -50
Twin City Four Wheel Drive		
B, 3½-ton	4750	
A, 5-ton	5250	
Union		
B, 2½-ton	2375	Feb. -31
4-ton	3500	
United		
1½-ton	2600	
2½-ton	3300	
3½-ton	3900	
5-ton	4700	
U. S.		
E, 2½-ton	2800	Jan. -41
H, 2½-ton	3250	Jan. -41
D, 3½-ton	3500	
J, 3½-ton	3950	Jan. -44
K, 5-ton	4850	Jan. -46
Universal		
1½-ton	2000	Feb. -24
3-ton	3400	Feb. -31
3½-ton	3700	Feb. -35
Velie		
25B, 2-ton	2950	Feb. -27
26B, 3½-ton	3900	Feb. -33
Viall		
2-ton	2500	
Vim		
1000 lb.	945	Jan. -29
22, 2-ton	3150	Jan. -35
23, 3-ton	3950	Jan. -41
25, 1-ton	2195	
26, ¾-ton	1200	
Walter		
5-ton four wheel drive	5500	
Ward La France		
2A, 2-ton	3500	June -25
Western		
7-ton	5700	Feb. -38
White		
1500 lb.	2300	Jan. -31
1½-ton	3300	Jan. -36
3-ton	4100	Jan. -41
5-ton	5000	Jan. -46
White Hickory		
F, 1-ton	2000	
H, 1½-ton	2400	Jan. -35
Wichita		
A, 1-ton	1850	Feb. -24
K, 1-ton	2000	
L, 1½-ton	2350	Feb. -27
B, 2-ton	2500	Feb. -31
R, 2½-ton	2950	Feb. -31
O, 3½-ton	3750	Feb. -35
Q, 5-ton	4600	Feb. -37
S, 6-ton	5400	
Wilcox		
S, 1-ton	1950	Feb. -24
X, 1½-ton	2775	Feb. -27
Q, 2½-ton	3250	Feb. -31
P, 3½-ton	3950	Feb. -35
W, 5-ton	4850	Feb. -37
Wilson		
1-ton	1750	
2-ton	2800	Feb. -31
3½-ton	3800	Feb. -35
5-ton	4600	Feb. -37
Winther		
38, 1½-ton	2250	
48, 2-ton	3000	Feb. -31
68, 3-ton	3800	Feb. -32
88, 4-ton	4200	Feb. -37
108, 5-ton	5000	Feb. -37
128, 6-ton	5250	Feb. -38
148, 7-ton	$5500	Apr. -51
Witt-Will		
WD, 2-ton	2850	Jan. -39
Gas-Electric Truck Tractors		
Couple Gear		
5-7-ton	6000-6100	
7-10 ton	6400-6600	
10-15 ton	7100-7200	
Gasoline Truck Tractors		
Acason		
Light	2950	
Heavy	4300	
Columbia		
6-ton sh. w. b.	2275	
Evans		
L, 2½-ton	2850	Jan. -47
Federal		
3-ton	2500	
7-ton	3475	
Garford		
70B, 4½-ton	3400	Jan. -47
77, 7-ton	4400	
68, 10-ton	5100	
Rennoc		
8-ton	2895	
Electric Truck Tractors		
Couple Gear		
5-7ton	4500-4600	
7-10 ton	5100-5200	
10-15 ton	5700-5800	
Electric Commercial		
Atlantic		
1-ton	2875	Jan. -49
2-ton	3563	Jan. -49
3½-ton	4281	Jan. -50
5-ton	4875	Jan. -50
6-ton	6313	Jan. -50
6½-ton	6469	Jan. -50
C. T.		
½-ton	1750	Jan. -49
1-ton	2100	Jan. -49
2-ton	2500	Jan. -49
3½-ton	3650	Jan. -50
5-ton	4150	Jan. -50
Couple Gear		
3½-ton	4500	June -18
5-ton	5000	June -18
7-ton	5600	June -18
General Vehicle		
1000 lb.		Jan. -49
1-ton		Jan. -49
2-ton		Jan. -49
3½-ton		Jan. -50
5-ton		Jan. -50
Lansden M.		
1000 lb. Chassis	1815	Jan. -49
2000 lb. Chassis	2090	
4000 lb. Chassis	2585	
7000 lb. Chassis	3025	
10,000 lb. Chassis	3465	
Master		
6-ton	2650	
Walker		
M, 1000 lb.	1700	Feb. -39
K, 1-ton	2100	Feb. -39
L, 2-ton	2500	Feb. -39
P, 3½-ton	3300	Feb. -39
N, 5-ton	3600	Feb. -39
5, 10-ton tractor	3200	Feb. -39
3, 15-ton tractor	5000	Feb. -39
Ward		
WS, 750 lb.	1100	Jan. -49
WA, 1000 lb.	1600	Jan. -49
WB, 1-ton	2100	Jan. -49
WD, 2-ton	2600	Jan. -49
WF, 3½-ton	3200	Jan. -50
WH, 5-ton	4000	Jan. -50
Gas-Electric Commercial		
Couple Gear		
3½-ton	6000	
5-ton	6600	
7-ton	7200	
5-ton	4950	Jan. -46

Conservation Measures Outlined at Gearmakers' Meeting

The responsibility devolving upon all manufacturers as a result of the shortages of labor and materials formed the theme of discussion at every session of the semi-annual convention of the American Gear Manufacturers' Association, held recently at Syracuse, N. Y.

President F. W. Sinram, addressing the members, reminded them of the many uses of gears in the various machines necessary to the winning of the war. The Government has little occasion, he said, to purchase gears direct from the manufacturer, but the manufacturer is indirectly dependent upon the Government for support.

Standardization was the topic which received most attention in the planning of the conservation program. B. F. Waterman, chairman of the General Standardization Committee, expects, when the program is complete, to make it possible for all forty-seven members of the association to make approximately the same product.

Frank Burgess, of Boston, suggested another conservation measure. He stated that there are at present over 1800 hobs owned by the membership, and he suggested that one manufacturer could lend hobs to other companies.

The efficiency of women, and the increasing number now being employed in the manufacture of gears, formed another subject of discussion.

Three new members have joined the association. They are: Cullman Wheel Co., Chicago; Brown-Lipe Gear Co., Syracuse, and the Indianapolis Tool & Mfg. Co., Indianapolis.

Preferential List of Industries is Guide for Truck Manufacturers

Government Indicates Industries Which Are to be Accorded Preference Treatment in the Matter of Supplies

ALL priorities in production and delivery are determined and administered by the chairman of the War Industries Board. All decisions of the Priorities Board are subject to review by him. As the determination of the relative importance of industries and plants was necessary in order that all plants engaged on work necessary to the conduct of the war might receive an adequate supply of materials necessary to production, which include plant facilities, fuel, raw material and finished products, labor and transportation facilities, a preference list has been prepared. The War Industries Board has issued the following notice:

To Motor Truck Manufacturers:

The War Industries Board has issued a preference list of industries. This list includes 69 industries and more than 6000 individual plants, which are being added to from time to time. (Circular No. 20. Preference List No. 2, September 3, 1918.)

Among these individual plants are or will be listed the manufacturers of motor trucks who have filed pledges and applications for places on the preference list. Necessary employees of such companies will be considered in essential work.

This list of 69 industries and more than 6000 individual plants will be a guide for essential uses for trucks as agreed to with the War Industries Board. This list may be used as a basis, but where any question arises as to the essential use of a truck, the matter should be referred for definite ruling to the Automotive Products Section of the War Industries Board for submission to the Priorities Division.

If in any given case the use proposed to be made of a motor truck of your manufacture shall be one which has not been defined as essential by the Priorities Division but which the proposed user conceives to be essential and of such importance that its sale to him should be permitted, then such proposed user may make a full statement of the facts in writing, under oath, to the manufacturer making such motor truck and apply to such manufacturer for his approval of the proposed use. Such manufacturer thereupon shall endorse upon the statement of facts his agreement with or disapproval of the same, giving his reasons therefor and transmitting the application and his endorsements thereon to the Automotive Products Section of the War Industries Board, Washington, D. C., for submission to the Priorities Division, and if approved by said Division a permit will be issued for the sale of such motor truck to such proposed user.

This new preference list will not bind the district draft boards in allowing deferred classification under the draft law. Persons seeking deferred classification, whether they are employers or employees, will submit to the draft board whether they are so essential to industry that they should remain out of military service. The draft boards will determine what industries are necessary and what employees are necessary to the maintenance of such industries.

The real purpose of the master key preferential list of industries is not to operate as an embargo against other industries not named, but "to defer the requirements of all other industries and plants until those on the preferential list shall have been satisfied."

Industries have been grouped into four classes. The classes differ in degrees of necessity as vital elements in the prosecution of the war. The following industries are those which the War Industries Board holds should have preferential treatment:

Classification of Industries

NOTE:—The term "principally" means 75 per cent. of the products mentioned.

AIRCRAFT—Plants engaged principally in manufacturing aircraft or aircraft supplies and equipment, Class 1.

AMMUNITION—Plants engaged principally in manufacturing same for the United States Government and the Allies, Class 1.

ARMY AND NAVY—Arsenals and Navy Yards, Class 1.

ARMY AND NAVY—Cantonments and Camps, Class 1.

ARMS—(Small)—Plants engaged principally in manufacturing same for the United States Government and the Allies, Class 1.

BAGS—Hemp, jute and cotton, plants engaged principally in manufacturing same, Class 4.

BLAST FURNACES—(Producing pig iron), Class 2.

BOOTS AND SHOES—Plants engaged exclusively in manufacturing same, Class 4.

BRASS AND COPPER—Plants engaged principally in rolling, and drawing copper, brass and other copper alloys in the form of sheets, rods, wire and tubes, Class 2.

CHAIN—Plants engaged principally in manufacturing iron and steel chain, Class 3.

CHEMICALS—Plants engaged principally in manufacturing chemicals for the production of military and naval explosives, ammunition and aircraft, and use in chemical warfare, Class 1.

CHEMICALS—Plants, not otherwise classified and listed, engaged principally in manufacturing chemicals, Class 4.

COKE—Plants engaged principally in producing metallurgical coke and byproducts, including toluol, Class 1.

COKE—Plants, not otherwise classified and listed, producing same, Class 2.

COTTON—Plants engaged in the compression of cotton, Class 4.

CRANES—Plants engaged principally in manufacturing locomotive or traveling cranes, Class 2.

DOMESTIC CONSUMERS—Fuel and electric energy for residential consumption, including homes, apartment houses, residential flats, restaurants and hotels, Class 1.

DOMESTIC CONSUMERS—Fuel and electric energy, not otherwise specifically listed, Class 3.

DRUGS—Medicines and medical and surgical supplies, plants engaged principally in manufacturing same, Class 4.

ELECTRICAL EQUIPMENT—Plants engaged principally in manufacturing same, Class 3.

EXPLOSIVES—Plants engaged principally in manufacturing same for military and naval purposes for the United States Government and the Allies, Class 1.

EXPLOSIVES—Plants, not otherwise listed, engaged principally in manufacturing same, Class 3.

FARM IMPLEMENTS—Plants engaged principally in manufacturing agricultural implements and farm operating equipment, Class 4.

FEED—Plants engaged principally in preparing or manufacturing feed for livestock and poultry, Class 1.

FERRO ALLOYS—Plants engaged principally in producing ferro-chrome, ferro-manganese, ferro-molybdenum, ferro-silicon, ferro-tungsten, ferrouranium, ferro-vanadium and ferro-zirconium, Class 2.

FERTILIZERS—Plants engaged principally in producing same, Class 4.

FIRE BRICK—Plants engaged principally in manufacturing same, Class 4.

FOODS—Plants engaged principally in producing, milling, refining, preserving, refrigerating, wholesaling or storing food for human consumption, embraced within the following description; all cereals and cereal products, meats, including poultry, fish vegetables, fruit, sugar, syrups, glucose, butter, eggs, cheese, milk and cream, lard, lard compounds, oleomargarine and other substitutes for butter or lard, vegetable oils, beans, salt, coffee, baking powder, soda and yeast, also ammonia for refrigeration, Class 1.

FOODS—Plants, engaged principally in producing, milling, preparing, refining, preserving, refrigerating or storing food for human consumption not otherwise specifically listed. Excepting herefrom plants producing confectionery, soft drinks and chewing gum, Class 3.

FOOD CONTAINERS—Plants engaged principally in manufacturing same, Class 4.

FOUNDRIES—(Iron)—Plants engaged principally in the manufacture of grey iron and malleable iron castings, Class 4.

GUNS—(Large)—Plants engaged principally in manufacturing same for the United States Government and the Allies, Class 1.

HOSPITALS—See public institutions and buildings.

ICE—Plants engaged principally in manufacturing same, Class 3.

INSECTICIDES AND FUNGICIDES—Plants engaged principally in manufacturing same, Class 4.

LAUNDRIES—Class 4.

MACHINE TOOLS—Plants engaged principally in manufacturing same, Class 2.

MEDICINES—See drugs and medicines.

MINES—Coal, Class 1.

MINES—Producing metals and ferro-alloy minerals, Class 2.

MINES—Plants engaged principally in manufacturing mining tools or equipment, Class 3.

NEWSPAPERS AND PERIODICALS—Plants engaged principally in printing newspapers and periodicals which are entered at the Post Office as second class mail matter, Class 4.

OIL AND GAS—Plants engaged principally in producing oil or natural gas for fuel, or for mechanical purposes, including refining or manufacturing oil for fuel, or for mechanical purposes, Class 1.

OIL AND GAS—Pipe lines and pumping stations engaged in transportation of oil or natural gas, Class 1.

OIL AND GAS—Plants engaged principally in manufacturing equipment or supplies for producing or transporting oil or natural gas or for refining and manufacturing oil for fuel or for mechanical purposes, Class 3.

PUBLIC INSTITUTIONS AND BUILDINGS (Maintenance and Operation Of)—Other than hospitals and sanitariums, Class 3.

PUBLIC INSTITUTIONS AND BUILDINGS (Maintenance and Operation Of)—Used as hospitals or sanitariums, Class 1.

PUBLIC UTILITIES—Gas plants producing toluol, Class 1.

PUBLIC UTILITIES—Street railways, electric lighting and power companies, gas plants not otherwise classified, telephone and telegraph companies, water supply companies, and like general utilities, Class 2.

PUBLIC UTILITIES — Plants engaged principally in manufacturing equipment for railways or other public utilities, Class 2.

PULP AND PAPER—Plants engaged exclusively in manufacturing same, Class 4.

RAILWAYS—Operated by United States Railroad Administration, Class 1.

RAILWAYS—Not operated by United States Railroad Administration (excluding those operated as plant facilities), Class 2.

SHIPS—(Maintenance and Operation Of) —Excluding pleasure craft, not common carriers, Class 1.

SHIPS—Plants engaged principally in building ships, excluding (a) pleasure craft, not common carriers; (b) ships not built for the United States Government or the Allies nor under license from United States Shipping Board, Class 1.

SOAP—Plants engaged principally in manufacturing same, Class 4.

STEEL MAKING FURNACE—Plants engaged solely in manufacturing ingots and steel castings by the open hearth, Bessemer, crucible or electric furnace process, including blooming mills, billet mills and slabbing mills for same, Class 1.

STEEL PLATE MILLS—Class 1.

STEEL RAIL MILLS—Rolling rails fifty (50) or more pounds per yard, Class 2.

STEEL—All plants operating steel rolling and drawing mills exclusive of those taking higher classification, Class 3.

SURGICAL SUPPLIES—See drugs and medicines.

TANNERS—Plants engaged principally in tanning leather, Class 4.

TANNERS—Plants engaged principally in manufacturing, tanning extracts, Class 4.

TEXTILES—Plants engaged principally in manufacturing cotton textiles; including spinning, weaving and finishing, Class 4.

TEXTILES—Plants engaged principally in manufacturing woolen textiles, including spinners, topmakers and weavers, Class 4.

TEXTILES—Plants engaged principally in manufacturing cotton or woolen knit goods, Class 4.

TEXTILES—Plants engaged principally in manufacturing textile machinery, Class 4.

TIN PLATES—Plants engaged principally in manufacturing same, Class 3.

TOBACCO—Only for preserving, drying, curing, packing and storing same, not for manufacturing and marketing, Class 4.

TOLUOL—See coke, also Public Utilities.

TOOLS—Plants engaged principally in manufacturing small or hand tools for working wood or metal, Class 3.

TWINE—(Binder and Rope)—Plants engaged principally in manufacturing same, Class 4.

WAR AND NAVY DEPARTMENTS—Construction work conducted by either the War Department or the Navy Department of the United States in embarkation ports, harbors, fortified places, flood protection operations, docks, locks, channels, inland waterways, and in the maintenance and repair of same, Class 2.

WIRE ROPE AND ROPE WIRE—Plants engaged principally in manufacturing same, Class 2.

WOOLEN TEXTILES—See textiles.

Preference Treatment List

For the guidance of all governmental agencies in the production, supply and distribution of raw materials, finished products, electrical energy, fuel and transportation by rail, water, pipe lines and otherwise, the Priorities Board has adopted the following General Classification of Purposes demanding preference treatment: (Including all necessary raw materials, partially manufactured parts and supplies for completion of product.)

SHIPS—Including destroyers and submarine chasers.

AIRCRAFT, MUNITIONS, MILITARY AND NAVAL SUPPLIES AND OPERATIONS—Building construction for Government needs. Equipment for same.

FUEL—Domestic consumption. Manufacturing necessities named herein.

FOOD AND COLLATERAL INDUSTRIES—Foodstuffs for human consumption, and plants handling same. Feeding stuffs for domestic fowls and animals, and plants handling same. All tools, utensils, implements, machinery and equipment required for production, harvesting and distribution, milling, preparing, canning and refining foods and feeds such as seeds of foods and feeds, binder twine, etc. Products of collateral industries, such as fertilizers, fertilizer ingredients, insecticides and fungicides. Containers for foods and feeds, collateral products. Materials and equipment for perservation of foods and feeds, such as ammonia and other refrigeration supplies, including ice.

CLOTHING—For civilian population.

RAILROAD—Or other necessary transportation equipment, including water transportation.

PUBLIC UTILITIES—Serving war industries, Army, Navy and civilian population.

Other Essential Trades and Industries

In addition Mr. Rhodes Baker of the Priorities Division of the War Industries Board, also has indicated his approval of the following industries and trades that come within the scope of what may be considered essential industries to which motor trucks may be sold:

Seeds.
Refrigeration.
Bridge builders.
Contractors—Building, road, paving, sand, gravel, cement, bridge, steel, garbage.
Farm wagon manufacturers.
Public haulage companies.
Drayage concerns.
Transfer companies.
Casket manufacturers.
Cemeteries.
Department stores.
Elevator manufacturers.
Hardware manufacturers.
Heating and ventilating concerns.
Hotels.
Hotel supply manufacturers.
Linoleum manufacturers.
Plumber's supplies manufacturers.
Stove manufacturers.
Tent and awning manufacturers.
Tire manufacturers.
Typewriter manufacturers.
Warehouses.
Other industries may be added later.

Individual Plants Listed

A list including 70 industries and more than 6000 individual plants has been prepared by the War Industries Board, and has been forwarded to truck manufacturers as a guide for truck sales. Where any question arises as to the essential use of a truck, the matter should be referred for definite ruling to the Automotive Products Section of the War Industries Board, for submission to the Priorities Division. Among the individual plants are or will be listed the approved manufacturers of motor trucks who have filed pledges and applications for places on the preference list. Necessary employees of such companies will be considered in essential work.

Name and Location.	Class.
California	
Hall-Scott Motor Car Co., Inc., Berkeley	1
Prest-O-Lite Co., Inc., Los Angeles	3
Connecticut	
American Chain Co., Inc., Bridgeport	3
Billings & Spencer, Hartford	2
Connecticut Telephone & Electric Co., Meriden	3
Frasse, Peter A. & Co., Inc., Hartford	3
Hartford Machine Screw Co., Hartford	3
Hubbell, Harvey, Inc., Bridgeport	4
Locomobile Co., Bridgeport	3
Malleable Iron Fittings Co., Branford	3
Marlin-Rockwell Corporation, New Haven	2
Marlin-Rockwell Corporation, Plainville	3
Maxim Silencer Co., Hartford	3
New Departure Manufacturing Co., Bristol	4
Raybestos Co., Bridgeport	4
Rowe Calk Co., Plantsville	4
Spring Perch Co., Bridgeport, Plant No. 1	3
Illinois	
Adams & Westlake Co., Chicago	3
Benjamin Electric Mfg. Co., Chicago	3
Burd High Compression Ring Co., Rockford	4
Champion Manufacturing Co., Chicago	3
Chicago Bearing Metal Co., Chicago	4
Chicago Flexible Shaft Co., Chicago	4
Chicago Screw Co., Chicago	3
Diamond T Motor Car Co., Chicago	4
Emerson-Brantingham Co., Batavia	4
Emerson-Brantingham Co., Rockford	4
General Electric Co., Chicago	4
Holt Manufacturing Co., Peoria	2
Imperial Brass Manufacturing Co., Chicago	3
Link-Belt Co., Chicago	3
Mutual Wheel Co., Moline	4
National Carbon Co., Inc., Belleville	4
Rich Tool Co., Chicago	3
Stewart-Warner Speedometer Corp., Chicago	4
Stewart-Warner Speedometer Corporation, South Beloit	4
Van Sicklen Co., Elgin	3
Weaver Manufacturing Co., Springfield	4
Whitman & Barnes Manufacturing Co., West Pullman, Chicago	3
Indiana	
Bowser, S. F. & Co., Fort Wayne	4
Davis-Bournonville Co., Elkhart	3
Diamond Chain & Mfg. Co., Indianapolis	3
Emerson-Brantingham Co., Columbus	4
Esterline Co., Indianapolis	4
General Electric Co., Fort Wayne	4
General Electric Co., Fort Wayne	3
Hayes Wheel Co., Anderson	3
Hill Pump Co., Anderson	3
Imperial Drop Forge Co., Indianapolis	4
Indiana Truck Corporation, Marion	4
Link Belt Co., Indianapolis	3
Muncie Wheel Co., Muncie	4
National Carbon Co., Inc., Noblesville	3
Perfection Tire & Rubber Co., Wabash	4
Remy Electric Division United Motors Corporation, Anderson	4
Richmond Malleable Castings Co., Richmond	2
Spacke Machine & Tool Co., Indianapolis	2
Standard Wheel Co., Terre Haute	4
Wayne Works, Richmond	4
Weideley Motors Co., Indianapolis	4
Western Drop Forge Co., Marion	3
Western Machine Works, Indianapolis	3
Spring Perch Co., Stratford, Plant No. 2	3
Veeder Manufacturing Co., Hartford	3
Whitlock Coil Pipe Co., Hartford	3
Whitney Manufacturing Co., Hartford	3
Iowa	
Camden Anchor-Rockland Machine Co., Rockland	2
Hart-Parr Co., Charles City	3
Kentucky	
Kentucky Wagon Mfg. Co., Louisville	4
Maine	
Camden Anchor-Rockland Machine Co., Rockland	2
Maryland	
Prest-O-Lite Co., Inc., Elkton	3
Massachusetts.	
American Tire Fabric Co., Newburyport	4
Boston Gear Works, Norfolk Downs	3
Boston Woven Hose & Rub. Co., Cambridge	3
Chase, L. C. & Co., Watertown	3
Coes Wrench Co., Worcester	4
Foxboro Co., Foxboro	2
General Electric Co., Boston	4
General Electric Co., West Lynn	4
General Electric Co., Lynn & Everett	3
General Electric Co., Pittsfield	3
General Electric Co., Danvers	4
General Electric Co., East Boston	4
Gilbert & Barker Manufacturing Co., West Springfield	4
Gray & Davis, Inc., Amesbury	2
Greenfield Tap & Die Corp., Greenfield	3
Holtzer-Cabot Electric Co., Roxbury, Boston	4
Knox Motors Co., Springfield	3
Lenox Motor Car Co., Hyde Park	3
Metz Co., Waltham	3
Mossberg, Frank Co., Attleboro	3
New England Westinghouse Co., Chicopee Falls	1
New England Westinghouse Co., East Springfield	1
Page-Storm Drop Forge Co., Chicopee	3
Standard Thermometer Co., Boston	2
Standard Woven Fabrics Co., Walpole	4
Sterling Motor Car Co., Brockton	2
United States Rubber Co., Millville	4
White & Bagley Co., Worcester	4
Wire Wheel Corp. of America, Springfield	2
Worcester Pressed Steel Co., Worcester	3
Michigan	
Acheson Oildag Co., Port Huron	3
Anderson Forge & Machine Co., Detroit	3
Atlas Drop Forge Co., Lansing	3
Biggam Trailer Corporation, Corunna	4
Buhl Stamping Co., Detroit	4
Cadillac Motor Car Co., Detroit, Plant No. 7	2
Chalkis Manufacturing Co., Detroit	1
Chicago Pneumatic Tool Co., Detroit	3
Clark Equipment Co., Buchanan	4
Detroit Copper & Brass Rolling Mills, Detroit	3
Detroit Motor Casting Co., Detroit	3
Detroit Screw Works, Detroit	3
Detroit Shell Co., Detroit	2
Gear Grinding Machine Co., Detroit	3
General Electric Co., Detroit	4
Gier Pressed Steel Co., Lansing	4
Harroun Motors Corporation, Wayne	3
Jackson & Church Co., Saginaw	3

Jackson Motor Shaft Co., Jackson..... 3
Kelsey Wheel Co., Inc., Detroit 3
Marvel Carburetor Co., Flint 4
Michigan Copper & Brass Co., Detroit. 3
Michigan Sprocket Chain Co., Detroit.. 3
Michigan Stamping Co., Detroit 4
Morley Brothers, Saginaw 4
Motor Products Corporation, Detroit... 4
Paige Detroit Motor Co., Detroit..... 4
Parker Rust Proof Co. of America, Detroit 4
Perlman Rim Corporation, Jackson..... 4
Piston Ring Co., Muskegon 3
Prest-O-Lite Co., Inc., The, Detroit... 3
Sparks-Withington Co., Jackson..... 3
Wilson, C. R., Body Co., Bay City..... 1
Zenith Carburetor Co., Detroit 4

Minnesota

Emerson-Brantingham Co., Minneapolis 4
General Electric Co., Minneapolis..... 4

New Jersey

Agasote Millboard Co., Trenton 4
Armstrong Cork Co., Camden 3
Condensite Co. of America, Bloomfield. 4
Davis-Bournonville Co., Jersey City.... 3
Dixon, Joseph, Crucible Co., Jersey City 4
Du Pont, E. I. de Nemours & Co., Camden 4
Du Pont, E. I. de Nemours & Co., Newark 3
Duratex Co., Newark 4
General Bakelite Co., Perth Amboy 4
General Electric Co., Harrison 4
General Electric Co., Newark 4
International Motor Co., Plainfield..... 3
Positive Lock Washer Co., Newark..... 3
Spicer Manufacturing Corp., South Plainfield 4
Splitdorf Electrical Co., Newark 3
Wasson Piston Ring Co., New Brunswick 3
Weston Electrical Co., Newark 3
Westinghouse Lamp Co., Bloomfield.... 4

New York

American-La France Fire Engine Co., Inc., Elmira 3
Bossert Corporation, Utica 3
Doehler Die Casting Co., Brooklyn..... 3
Eisemann Magneto Co., New York City 3
General Electric Co., Schenectady..... 2
International Motor Co., New York.... 4
Jones Speedometer, Inc., New Rochelle 3
Livingston Radiator & Mfg. Co., New York 2
Morse Chain Co., Ithaca 3
Motometer Co., Inc., Long Island City 3
National Gum & Mica Co., New York City 4
New Process Gear Corporation, Syracuse 4
Oakley Chemical Co., New York City. 4
Pouvailsmith Corporation, Poughkeepsie 4
Pyrene Manufacturing Co., New York City 4
Rome-Turney Radiator Co., Rome 3
Russell Motor Car Co., Buffalo 2
Sears Cross Co., Brooklyn 3
Syracuse Malleable Iron Works, Syracuse 4
Titanium Alloy Mfg. Co., Niagara Falls 3
Westinghouse Electric & Mfg. Co., Attica 3
Westinghouse Lamp Co., New York City 4
Williams, J. H. & Co., Brooklyn..... 3
Williams, J. H. & Co., Buffalo 3

Ohio

Champion Machine & Forging Co., Cleveland 3
Champion Spark Plug Co., Toledo..... 4
Chicago Pneumatic Tool Co., Cleveland 1
Cleveland Tractor Co., Cleveland..... 4
Columbus McKinnon Chain Co., Columbus 3
Dayton Engineering Laboratories Co., Dayton 4
Dayton Manufacturing Co., Dayton..... 4
Elwell-Parker Electric Co., Cleveland.. 2
General Electric Co., Warren 4
Globe Machine & Stamping Co., Cleveland 2
Leece-Neville Co., Cleveland 4
Macbeth-Evans Glass Co., Toledo 4
National Carbon Co., Inc., Fostoria..... 2
National Carbon Co., Inc., Cleveland... 3
National Carbon Co., Inc., Nungesser Plant, Cleveland 3
National Carbon Co., Inc., Fremont.... 3
National Chain Co., Marietta 3
Stearns, F. B., Co., Cleveland 2
Turnbull Motor Truck & Wagon Co., Defiance 4
Warner Auto Top Co., Cincinnati..... 4
Warner & Swansey Co., Cleveland..... 2
Willard Storage Battery Co., Cleveland. 4

Pennsylvania

Adams & Westlake Co., Philadelphia.. 3
American Asbestos Co., Norristown.... 4
American Chain Co. (Carlisle Plant), Gettysburg Junction 3
American Chain Co., Inc., Braddock... 3
American Chain Co., Inc. (electrical welding department), East York..... 3
American Chain Co., Inc. (Schmidt fire welding department), York..... 3
American Vanadium Co., Bridgeville... 2
Armstrong Cork Co., Beaver Falls..... 4
Armstrong Cork Co., Pittsburgh..... 4
Armstrong Cork & Insulator Co., Oakdale, Allegheny County 4
Atwater-Kent Mfg. Works, Germantown 2
Autocar Co., Ardmore 3
Bearings Co. of America, Lancaster.... 4
Diamond Chain Co., York 4
Duff Manufacturing Co., Pittsburgh.... 3
Electric Storage Battery Co., Philadelphia 3
Emerson-Brantingham Co., Waynesboro 4
Hale Kilburn Corporation, Philadelphia 2
Hindley Gear Co., Philadelphia 4
International Motor Co., Allentown 3
Keim, J. R. & Co., Inc., Philadelphia.. 4
Light Mfg. & Foundry Co., Pottstown.. 3
Link-Belt Co., Philadelphia 3
Macbeth-Evans Glass Co., Charleroi .. 4
Merchant & Evans Co., Philadelphia... 3
Pittsburgh Model Engine Co., Pittsburgh 3
United States Rubber Co., Williamsport 4

Rhode Island

O'Bannon Corporation, Phillipsdale..... 2
Pawtucket Mfg. Co., Pawtucket 4

West Virginia

National Carbon Co., Inc., Clarksburg.. 2

Wisconsin

Cutler-Hammer Mfg. Co., Milwaukee... 4
Four Wheel Drive Auto Co., Clintonville 3
Hall, C. M., Lamp Co., Kenosha..... 4
Ladish Drop Forge Co., Cudahy 3
Nash Motors Co., Kenosha 3
Westinghouse Lamp Co., Milwaukee.... 4

Refrigerator Motor Truck for Perishable Products

The idea of delivering perishable food products by refrigerator motor trucks to merchants in small towns within a radius of 100 miles of distributing points should be encouraged, as a means of helping to relieve the shortage of freight cars.

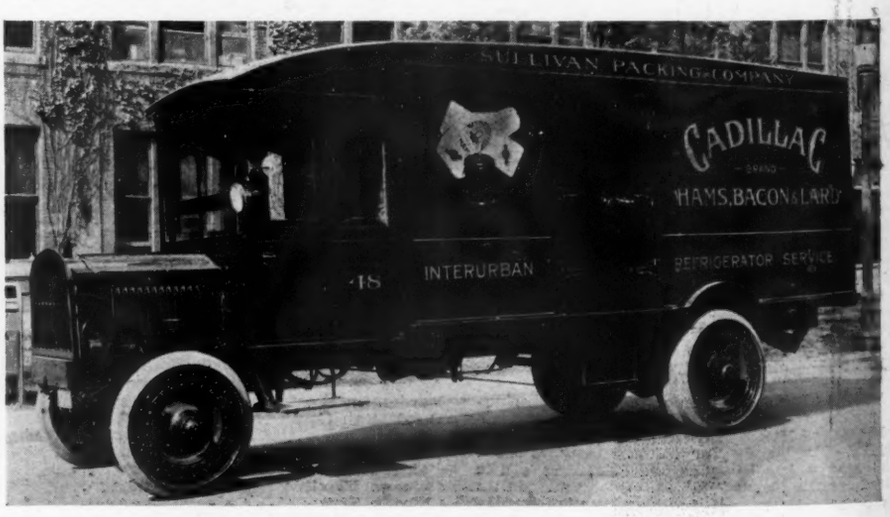
In the refrigerator body, built by the Motor Truck Body Co., the ice tanks are at the rear and are filled through two trap doors in the roof. It is claimed that a temperature of about 42 deg. can be maintained in ordinary summer weather. The water is drained at the rear end of the body, which prevents any of the salt from dropping on the mechanism of the truck. The body is 16 ft. long, 6 ft. 7 in. wide, and 5 ft. 6 in. in height, inside measurements.

The construction is of double panelling, and the space between is filled with 2-in. cork. The interior is so designed that in hauling meat the entire load is suspended from bars that run cross-wise and length-wise, giving ample strength to carry all that the space will admit of hanging up. There are double doors on each side to facilitate loading and unloading. The doors are built and operate on the same principle as standard refrigerator doors. It will be noted that the driver's comfort has not been overlooked in designing this unique body, as the driver's compartment is completely enclosed with a door on each side, the upper half being removable, and on each side of the driver's seat are windows, which may be lowered for summer driving. The windshield is built in, and equipped with ventilating sash, which is adjustable, giving the rain vision advantage.

Preference List Applications Should be Filed Immediately

The National Automobile Chamber of Commerce recently sent out to the automobile and motor truck trade General Letter No. 185, accompanied by an application blank for place on the Preference List. This application blank, if and when approved, places the manufacturer on the preference list for fuel, labor, materials and transportation in view of the present shortages.

Any maker of motor trucks who has so far failed to return this blank to the Priority Board of the War Industries Board, Washington, D. C., should do so immediately. Makers of trucks in filling this form should state that it is in accordance with circular No. 11 of the War Industries Board and circular No. 177 of the N. A. C. C., relating to priority on materials for trucks under certain pledges to sell trucks for essential uses.



How the Sullivan Packing Company Ships Perishable Products to Dealers in Suburban Towns

A complete refrigerator body is mounted on a six-ton Packard with Sewell cushion wheels

Seattle Coal Dealers Save Time and Money With Motor Trucks

Trucks Cover Two to Three Times Former Delivery Radius. Two-Ton Truck Replaces Three Teams and Two Men

By WARREN EUGENE CRANE

SEATTLE is a city that offers many difficulties to the coal dealers who wish to deliver their fuel with horses. In the first place, with its area of nearly one hundred square miles, it covers more ground than many eastern cities of twice its population. It is in fact a collection of small villages and cities which have grown together during the boom periods between 1900 and the present time. There is Ballard, which was originally a city of twenty thousand with a mayor of its own, as well as West Seattle, which has the population of a medium sized city. In addition to these places there are Fremont, Ross, Green Lake, Ravenna Park, Georgetown, South Park, Hillman, Columbia and South Seattle — a group of towns that have been incorporated into the city. These places in a majority of cases have been separated from the main part of the city by some natural barrier, such as the Duwamish River, Lake Union, Lake Washington Canal, Salmon Bay or Green Lake. A second obstacle for the coal dealers to overcome is that of the steep hills that loom on all sides. Queen Anne Hill, Beacon Hill, Capital Hill, Renton Hill, Phinney Ridge and Magnolia Bluff combine to make it difficult to deliver coal with horses, especially in the winter when the pavements are slippery. Up to the advent of motor transportation, the activities of the average coal dealer were confined to a small radius because of these natural barriers. With the motor truck, however, he has been able to broaden the scope of his business so that it can cover from two to three times the former radius.

Garford Truck in Service of City Fuel Company, Unloading a Flat Car of Coal Near Their Coal Office in Seattle. They Report a Big Saving of Time and Money

The Will Blair Fuel Yards of Seattle operate one two-ton Mack and two Sterling trucks of two and one-half tons and three tons capacity respectively. They also operate three teams with wagons for short hauls to nearby places. Their average expense for running each of their teams per month is as follows: Feed and barn, $75; shoeing, $8; repairs and harness, $2; total, $85. These figures are exclusive of labor.

"We find the motor truck especially satisfactory for long hauls," said Will Blair, the proprietor. "They can cover an average of twenty-four miles a day, while our teams are confined to a limited area near our yards. We can deliver a load of coal to Capital Hill in only an hour, while it would take us nearly a half a day to haul it with horses. The only reason for our keeping our teams is the fact that our yard is located in a low lying place on Lake Union and the mud is very deep during the winter season and the horses can get through it more easily than motor trucks possibly can. For heavy hauls up Seattle's steep hills I believe that there is nothing that can equal the motor truck."

The Keating Fuel Company, of Seattle, has replaced three teams and from two to three men by the use of a Kleiber two-ton truck. Their average daily expense is as follows:

Gasoline	$1.00
Oil and grease	.20
Tires	1.00
Driver's salary	5.25
Helper's salary (eight hours at 50c an hour)	4.00
Insurance (fire, liability, theft)	.65
Depreciation at 20 per cent per year	1.49
Interest on money at 7 per cent.	.51
Total	$14.10

"We have found the motor truck a great saver of time and money in our business," said John B. Keating, president of the company. "I believe that a careful driver is very important in running a truck successfully. We pay our man more than the usual scale because he is especially careful of his machine and spends half of every Sunday cleaning and attending to it. I believe that a little extra money expended in hiring a good and efficient driver who will be careful of his truck is money well spent."

The City Fuel Company operates two two-ton Garford trucks in delivering its coal to the various residence districts of Seattle. "Our two machines have replaced six horses and are doing twice the work that they used to perform," said J. A. Wilson, manager of the firm. "A large number of our customers have told us that they order from us in preference to some of our competitors because we deliver with motor trucks, while they use horses and wagons. They say that they prefer to have their coal come in our motor trucks for the sake of appearances as well as sanitary reasons. We can be more prompt than the dealer who has to depend on horses because we can get around more quickly.

"It costs us between $12.50 and $15 a day to operate a truck, including the salary of a driver, depreciation at twenty per cent, oil, tires, repairs and gasoline. The motor truck is decidedly economical when the amount of work that it does is considered."

Wainwright and McLeod operate two two-ton Garfords and one two and one-half-ton Gersix truck in the delivery of their coal to the various districts of Seattle, thereby replacing thirteen horses. Their average daily, fixed and variable cost per day is as follows:

Gasoline	$1.10
Oil and grease	.14
Tires	1.15
Labor	5.00
Insurance	.24
Depreciation (20 per cent annually)	1.50
Repairs	1.45
Interest on money at 7 per cent	.53
Total	$11.11

"The motor truck is a necessity for the coal dealer here in Seattle, because of the steep hills and the long distances," said A. D. Wainwright. "The only

Diamond T in Service of the Pacific Fuel Company, Hauling Wood

time that we use horses is in the winter when the mud is deep. We then use them for short hauls in places where the motor trucks cannot go."

Milligan and Nesbitt, Seattle coal dealers, operate a two-ton Acme truck and a ton and a half Northwestern truck. Their average operating cost is thirteen cents per mile, and their average daily cost is as follows:

Labor	$4.75
Gasoline	1.20
Tires	1.25
Depreciation	1.31
Oil	.15
Interest	.46
Repairs	1.50
Garage rent	.20
Total	$10.82

"We find that the motor truck enables us to cover four times as large a territory as we could cover when we were confined to horses. Where we used to cover only the three districts of Queen Anne Hill, Denny Way and Capitol Hill, we can now deliver coal to Fremont, Ross, the Wallingford district and the Meridian district. We know that our business has increased wonderfully as a result of our motor trucks, and the main trouble that we face now is to get enough coal to fill our orders.

"Our expense for boarding our team of horses is $65 per month and our average bill for shoeing is $8.50 a month. Then, too, we have to pay $100 for a good set of harness now, while our driver costs us $4.50 per day. We figure that our motor truck and our team cost us about the same, but the truck can cover three times as much ground. The only reason that we keep our team at all is for the muddy unpaved streets, where we have found that the horse makes better progress. In general, however, we prefer the motor truck because it is stronger and can do a greater amount of work in proportion to the money expended."

Henry Heckman, one of Seattle's leading coal dealers, operates one two-ton Garford truck, two one and a half-ton Northwestern trucks and twenty-seven horses. His trucks cost him on an average of $12 a day, including labor, depreciation, tires, gasoline, insurance, oil, grease, repairs and storage. He uses his teams on unpaved streets and in climbing hills that are inaccessible to motor trucks. In his opinion, the hauling cost per ton by motor truck in a paved district is lower than for horses.

The Continental Fuel Company operates one two-ton Sterling truck and one one-ton machine with a truck attachment. Their average cost per day, including tires, gasoline, insurance, repairs, interest on money, labor of driver, storage and depreciation is $12.

"My experience has been that the motor truck is far superior to horses," said James R. Haydon, the manager. "I also believe, in common with many firms, that it is cheaper to trade trucks in on new ones after two years than it is to hold them. Several local companies have been doing this and they claim that it has saved them repairs and insured them a first class equipment at all times."

The Carbonado Coal Sales Company, wholesalers and retailers, operate one five-ton and one two and a half-ton Mack truck. They cover the entire city with these machines and many districts which it was impossible for them to touch without them. In fact, before the company installed their motor trucks they were confined to a wholesale business; but now their sales have increased wonderfully through their ability to deliver their product direct to the consumer.

"We have had our motor trucks only six months and we have not secured accurate cost figures yet," said R. S. Bunker, assistant manager of the company. "I will say, however, that we have had no repair bills up to the present time and that we are abundantly satisfied with the work that our trucks are doing. We know that they have increased our sales greatly."

The Independent Fuel Company operates two five-ton Packard trucks and one one-ton truck. This company also hauls fuel for Hodge Company. They report that they have found motor truck transportation satisfactory and that it has resulted in an increase in the territory which they cover.

The motor truck may prove the means of preventing a fuel shortage in the future. In consequence it could replace the railroad train in bringing the coal direct from the mine to the consumer. It has already been a great benefit to the Seattle coal dealers who are desirous of saving time and money to offset the topographical and physical difficulties with which they must deal in their delivery work. The motor truck has been for them the most efficient and economical mode of transportation.

National Kitchens and Truck Possibilities in England

Restaurant keepers and caterers in the United Kingdom have put up their prices to such an extent that they have done much to encourage the development of the National Kitchen, and though the Briton does not usually favor state or communal competition with private enterprise, the caterer is finding little public sympathy in his whine against the public kitchens that have been instituted in London, while these kitchens, or more correctly, restaurants, find much favor on account of the excellent value they give for the money. Consequently there is a talk of starting a national kitchen here and there.

And these kitchens have other possibilities besides those of the mere restaurant. A beginning has been made in Chelsea, London, where those in charge have rigged up a small vehicle to deliver ready cooked hot meals direct to customers' houses. At the present time it is but a humble beginning, and only a donkey cart is used, but there is undoubtedly scope here for a handy, low-priced, light truck that can be economically worked, for rapidity constitutes a valuable asset in this work. There is another reason, too, in favor of this form of national kitchen trading, for the shortage of coal for domestic use is making many a housewife scheme how she may do with the minimum of cooking, and already in many parts there is a strong feeling that the fuel stringency can best be relieved by the establishment of national kitchens throughout the land. Certain it is, if that comes about, that the catering trade will howl, and it is equally certain that they will get little sympathy from a public that has suffered their profiteering in the past.

Sand Blast Principles and Data—Pangborn Corp., Hagerstown, Md., contains a very complete description of sand-blasting equipment and processes, with tables giving data for consideration before purchasing equipment. Different types of sand-blasting machines are described, and their suitability for various kinds of work, and the advisability of considering the size of the plant when selecting equipment, are indicated.

Is a Bonus to Drivers and Loaders Profitable to the Employer?

ONE problem that every firm operating motor trucks must face is that of securing the maximum amount of work from drivers and helpers without overloading or destroying its machines. A bonus system has been found profitable by a large number of logging companies in the Pacific Northwest. The main objection to this form of remuneration is that it has resulted in a greater depreciation of the motor truck and a greater wear and tear upon the roadways. However, after an interview with several of the leading firms of the Northwest, and a careful investigation of the situation, the writer has come to the conclusion that the losses resulting from a greater speed of operation are more than offset by the time and money saved.

One logging firm has found it profitable to pay two per cent of its net profits each year to its employees. The men are told that their individual efforts will have a direct effect upon the amount of the bonus that they will earn. The profits are divided in proportion to the amount of wages that each employee earns. In addition to stimulating the men to greater effort this firm tends to unify its working force and to keep its employees upon the pay roll year after year.

"I believe that a bonus is a great incentive to the driver and the helper," said Mr. Jay Smith, logging truck expert with the Kelly-Springfield Motor Truck Company. "Many people claim that when a man drives a motor truck exceptionally hard with the idea of getting a bonus that he will cause more damage than the time saved is worth. I do not think that this is true in most cases.

"One of the best ways of paying a bonus is to find out what a normal day's work under average conditions consists of. For example, in the logging business we will find that the usual work for a motor truck with a trailer is eight three-mile round trips a day with an average load of 18,000 ft. of logs. The most satisfactory bonus is one of 25 cents a thousand to the men on every load of timber carried above the normal amount.

"One thing that it will pay the owner to do is to give the driver a bonus for a few hours overtime work in keeping the truck in good mechanical condition. Many firms let their trucks run a long time without giving them any care and then put them in a repair shop, where they are usually kept for several days. The charges in many places run $1.50 an hour for a mechanic's repair bills, and delays could be reduced to a minimum or eliminated if the owner would pay the driver overtime for a half day's extra work on Saturday evenings, or Sunday, in greasing, oiling and looking after his truck. I have found that the driver is usually too tired at night to repair and adjust the parts of his truck without pay, but he will do it gladly if he receives a bonus of 40 cents or 50 cents an hour. His overtime work will save many expensive trips to the repair shops. This plan is one that is especially good for furniture dealers or in other lines of business where the motor trucks are subjected to constant wear and tear."

The average cost of operating a logging truck and trailer, including labor, gasoline, tires, depreciation, oil, grease, insurance, repairs and interest on money invested, is thirty dollars a day. If the outfit has been carrying an average of 20,000 ft. of logs a day the owner can get his men to haul an average of 30,000 ft. a day by installing a bonus system. The price paid to the logging company is usually $8 per thousand, so that the company would receive $80 extra for the additional 10,000 ft. Out of this extra $80 the company could easily stand $5 for extra depreciation and upkeep as well as a bonus of 25 cents per thousand, or $2.50 each to the five men connected with the work of hauling, loading and unloading. The total increased income of $80, less the bonuses of $12.50 and the additional depreciation and upkeep of $5, would leave a total increased income to the company of $62.50. The men who have been earning $4.50 a day will be more contented if they are earning $7 a day, and will be more likely to work more diligently and to remain permanently in the employ of the company.

The Hammond Lumber Company, one of the largest timber firms on the Pacific Coast, has established a bonus system that has proved satisfactory. Before it was installed a large amount of time was lost in useless labor and conscious soldiering. For example, the head chopper would cruise through his strip, aiming to locate the trees which he would have to fell first. While he was doing this, his second, or helper, would sit idly on a stump and do nothing, when he might have been cutting brush, driving holes, or undercutting small trees.

"We offered a bonus of so much a square foot for each foot over the base," said H. L. Henderson, of the Hammond Lumber Company. This base was determined by taking the average stump area of trees felled over a period of several months before the bonus rate was set, eliminating, of course, the extremely high or low men.

"When the bonus plan was announced, many and various predictions were made on all sides. It was said that it would never work; that the breakage would be increased, and that the men were already doing all they were able to do. In fifteen months of scaling since the bonus was instituted, the average stump cut per day has been slowly but surely rising. At the beginning of last year the average for the entire crew was 54.8 sq. ft. per day to a set. Since then the average has been 65 sq. ft., with an occasional rise to more than 70 sq. ft.

"The average for the whole crew is cut down considerably by the constant breaking in of new sets, but three-fourths of the members of the present crew have been with us continuously since we introduced the bonus. Nearly all of these men have earned, in addition to their regular wages, a bonus ranging from a few dollars up to $25 per man per month, showing, I think, that the men welcome the opportunity to increase their pay check."

The results of the bonus system to the Hammond Lumber Co. were: first, the extra physical effort expended by the men, and second, the mental work that helped to eliminate useless physical effort.

In order to induce the men to plan their work with good judgment, the company had them time their own operations and classify them. The result of this study has been that the time spent in useless work has been decreased ten per cent and has been used in work that gives greater results proportionate to the time and energy expended.

During the time that the bonus system has been in operation the amount of breakage has varied from .68 per cent to 2.1 per cent per month, which is considered by the company to be so small as to be negligible. Executive heads of the company report that the extra physical exertion and the increased mental energy and skill used by employees in their work has convinced them that the bonus system is an unqualified success.

Shuler Axle Mfg. Co., Detroit, Mich., has recently increased its capital from $150,000 to $200,000.

Highway Trailer Co., Edgerton, Wis., has recently begun the erection of a factory addition, 40 by 200 ft. The building will cost approximately $30,000. This company has recently been awarded contracts for trailers by the Government.

Enameling & Stamping Corp. of N. Y., Long Island City, N. Y., which some months ago acquired the plant of the Fickling Enameling Corp., has re-equipped the plant and is prepared to handle finishing and refinishing of fenders, hoods and motor accessories. The company does not do high temperature vitreous porcelain enameling, but applies baked-on coatings of all kinds up to 400-600 deg., including transparent rust-proofing, acid-proofing, etc.

British Railroads and the Automobile Freight Transport

By OUR LONDON CORRESPONDENT

THOUGH motor trucks and vans for freight work have hitherto been used to a surprisingly small extent in Great Britain, the reasons for the delay in such an inevitable development are instructive, and in reviewing this subject it is very necessary to bear in mind these influences.

Broadly speaking, the collection and delivery of freight by railway companies in this country may be considered in two separate classes—town and country deliveries. In the country, as a rule people have to have their own vehicles—horse or auto—and consequently do much of their own carrying between the railway station and their homes. There is therefore little need to consider this aspect of the question, although it is rather surprising that the automobile has not been used more as a feeder to develop agricultural localities.

Some Difficulties of the Towns

For town work the motor truck has many difficulties to face. Towns and cities over here being generally the outcome of centuries of haphazard development, in the first place afford anything but ideal road conditions. The streets are too often narrow which makes it impossible for an automobile to get ahead of the slowly moving horse drawn vehicle in front of it, and thus it is unable for a time to obtain any advantage from its speed. Then loading or unloading has to be performed in many a narrow side street or awkwardly situated court which is inconvenient enough for any single car to reach, and owing to the necessity for backing one way, is impossible with a trailer. Finally, at the warehouses and docks it is, under the present system at any rate, very generally impossible to avoid long delays waiting for loads, or waiting opportunity to discharge.

Tentative Truck Testing

All these difficulties hit the auto truck on its strongest points. It is therefore not surprising that the Caledonian, the Glasgow and South Western, the Highland, the London, Brighton and South Coast, and the Southeastern & Chatham Railways at present are not employing commercial cars for freight deliveries. Various other roads are as yet in the experimental stage and therefore are not yet in a position to give particulars. Among these are the Great Eastern, the Great Northern and the Great North of Scotland Railways.

The North British Railway Company is at present experimenting with two motor trucks in the delivery and uplifting of goods traffic at Dundee. In this case, too, the tests have not yet developed sufficiently to enable definite opinions to be formed from the results.

North Eastern's Experiences

The London and South Western Railway has also used auto trucks, but as yet is not in a position to give definite particulars. We are, however, able to give an illustration of the type of vehicle in use by them. Among the pioneers in the use of steam auto trucks the North Eastern Railway Company stands pre-eminent. Its original idea was to use these vehicles to serve agricultural districts not traversed by its branch lines. It was hoped that the trucks would act as feeders to the railway. They actually did useful work in carrying commodities such as fertilizer and agricultural produce, but the experiments were not a financial success, and the whole of the country services are now discontinued. The wagons are now being kept on freight and delivery work in towns. It should be explained, however, that the North Eastern Railroad serves the agricultural districts of Northumberland and Yorkshire. They are consequently able to purchase horses at very reasonable prices, and are favorably situated for supplies of provender. The cost of horse cartage in the district served by them is exceptionally low, and they have not the same inducement to try mechanically-propelled vehicles as some other railroad companies.

When the commercial car was first introduced for cartage work, the company also experimented with a couple of these vehicles. The result of this experiment was not very encouraging, but since the outbreak of war they have converted a number of their passenger cars into goods tractors, and now inform me that they are getting fairly good service from them, although most of these machines had been in service for six or seven years before the war and cannot be expected to work as efficiently as up-to-date chassis specially built for freight cartage.

The company has not as yet experimented with electrics, but are closely watching the results that others are obtaining from these vehicles.

The Parcels Delivery and Collection Vans Employed by the London and South Western Railway Company, in England, Are of This Type

The Largest Company in England

The London and North Western Railway, which is financially the largest company in this country, is devoting a good deal of attention to automobile trucks for freight service, and I am indebted to Mr. W. A. Ree, Out-Door Goods Manager, Southern Division, for some instructive particulars on the subject.

In 1905 they bought their first road freight car, a 5-ton Foden steamer working at Holywell, and another was shortly afterwards put into service at Birmingham. These vehicles, however, running on steel tires, were legally restricted to a speed of five miles an hour, and were of a type which would not find favor in the United States, though enjoying the highest possible reputation on European roads.

Sixty-five Cars for Freight at Present

In 1910 the North Western Company bought their first gasoline truck, a 2¼-ton Thornycroft, which was put to work at Leeds. At the present time, for freight deliveries they have 58 gasoline trucks, ranging from 2¼ to 4 tons, 6

steamers, and 1 electric 3-tonner. Five of the steamers are for 5-ton loads, one on rubber tires; the remaining steamer is a 3-tonner, also on rubber tires. These tires enable the legal speed to be increased from 5 to 8 or 12 miles an hour.

For the parcels delivery in London the vehicles come under the jurisdiction of the Goods Department, though elsewhere they are under the traffic superintendent, and for this work Mr. Ree has five gasoline trucks and one electric. The results achieved with these may be judged from the fact that the company also has on order eight gasoline 3-tonners and fourteen steam, rubber-tired 3-tonners. The gasoline trucks are chiefly of the Commer, Daimler, Karrier, Leyland and Thornycroft makes.

Commercial Cars Save Over $75,000

During the past year the sixty-three trucks in the freight handling department have shown a saving of well over $75,000. The parcels delivery vans in London just about pay their way, which is probably due to the fact that in London this great company possesses several stations, each with its own delivery area; consequently the working radius of these vans is curtailed, and they do not have to run far with a full load before beginning deliveries. Indeed, the vehicles usually begin deliveries well within a mile of their starting point. To this same reason must also be attributed the fact that the larger freight trucks do not pay in London, though in Birmingham and Manchester they pay well, in spite of the time inevitably lost in loading, owing to the congestion and other difficulties that every railway man will appreciate.

Congested Depots

But the working conditions not only vary greatly in different towns, but are often very difficult. Many of the goods depots are so congested that there is little, if any, room for labor-saving devices, such as special cranes for automobile loading, demountable bodies, trailers, or other appliances for reducing delay to the vehicle in loading; and the difficulties in the way of extending these premises are enormous. The company tells me that it has considered most loading devices, including demountable bodies, and the "flat" system, which consists of the use of a number of light, interchangeable, platform bodies which can be loaded up in the depot or warehouse, while the truck itself is still on the road. When out of use they can be stacked without occupying much room. The question is still receiving considerable attention.

Yet another obstacle in the way of profitable working lies in the frequent difficulty of obtaining full loads. Again, the nature of the load may prevent profitable working, for a full load from point to point generally pays better than a load which is made up of odd packages that have to be delivered here and there.

Trucks Speed up the Whole Organization

In spite of all these difficulties the automobiles are paying, and they tell me that besides paying directly in hard cash, the trucks undoubtedly pay indirectly, for they exert a general tendency to speed up matters.

Broadly speaking, it is reckoned that if one car will displace two and a half single horse teams, it is more profitable than horse carriage, though in some towns where there are rush hours of delivery the separate horse units are more advantageous than a single truck unit. If a car does not pay its way, it is at once removed to another station.

High Prices Favor the Truck

In spite of the increased costs during the last four years, it is reckoned that the altered condition brought about by the war favor the automobile truck in that horse costs have increased to a much greater extent than the cost of mechanical transport. Before the war the keep of a horse was $4.36 a week; it is now about $10, and in average districts, to every ten horses an additional rest horse is required, while in hilly country they employ one rest horse to every five. From this point of view the future of the automobile for transport delivery looks bright, for it is improbable that, even when peace comes, prices will fall greatly, or the keep of a horse fall much below $9 a week.

Costs and Nature of Work

The detailed costs that I am able to give emphasize the point, and show in comparison a typical 2½-ton Leyland car working at Liverpool Road, Manchester, and a 4-ton Leyland working in the Dudley district. In the former case the tonnage was comparatively small, and the loads much divided up into small consignments involving a lot of idle time in standing about, and spread over a very wide district. The figures for the 4-tonner give the details of the lowest per-ton figure of all the North Western freight automobiles, for here the conditions are favorable, with a lot of heavy metal traffic involving full loads from point to point. It is fair, however, to say that the 2½-tonner is an older vehicle converted from the passenger traffic, while the 4-tonner was purchased for freight work in 1911.

Working costs for six months with 2½-ton Leyland running 5010 miles and carrying 1533 tons on 139 working days (possible number of working days, 156).

Working Costs

Wages	$901.11
Fuel	465.23
Lubricants and Stores	24.88
Tires	47.38
Maintenance	240.90
Depreciation	185.54
Interest	65.22
Sundries	8.23
Total	$1939.43

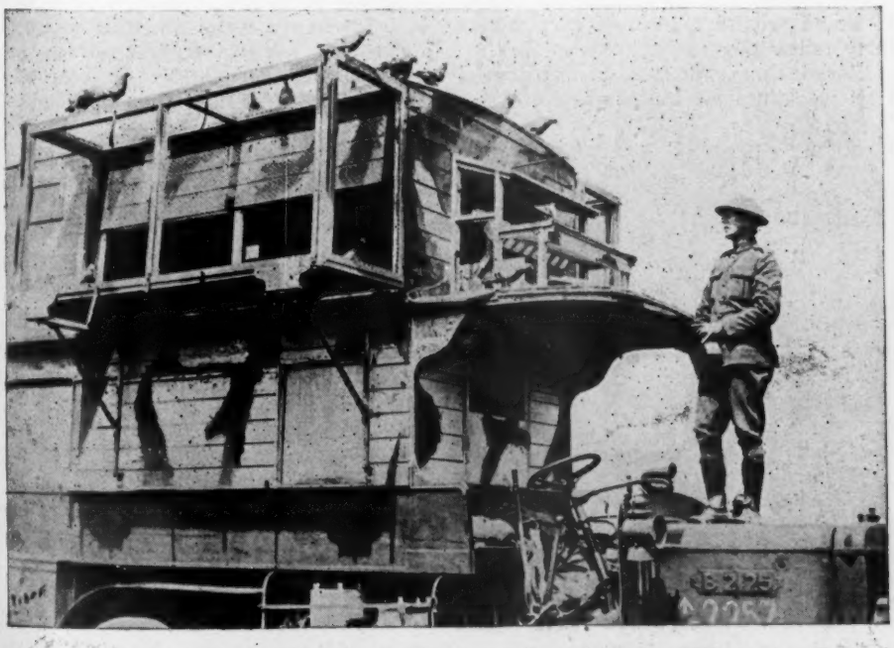
Cost per mile, .095.
Cost per ton, 1.16.
Cost by horse, $2581.83.
Cost per ton by horse, $2.564.

Working costs with 4-ton Leyland running 3785 miles and carrying 3135 tons, on 142 working days (possible number of working days, 156),

Working Costs

Wages	$498.53
Fuel	606.58
Lubrication and Stores	26.45
Tires	50.56
Maintenance	92.83
Depreciation	188.34
Interest	69.48
Sundries	8.79
Total	$1541.56

Cost per ton, .448.
Estimated cost by horse, $2334.98.
Cost per ton by horse, .692.



Motor Trucks Used for the Transportation of Carrier Pigeons

This motor truck is used by the British army for transporting carrier pigeons from one sector of the battlefield to another. • Note how the sides of the 'bus have been camouflaged

Motor Truck Helps Build "Victory" Destroyer Plant

Construction Work at Squantum, Massachussetts, Greatly Expedited by Motor Haulage

By J. MERRILL RICHARDS

AT THE launching, on August 6, this year, of the U. S. torpedo boat destroyer "McDermot," at the new Squantum Works of the Fore River Plant of the Bethlehem Shipbuilding Corp., Ltd., Charles M. Schwab, who made a special effort to be present, was asked to make a short address. After paying tribute to the men who actually built this boat—the second launched from this mammoth plant—he said, in part: "I have just returned from a trip to the Pacific coast, where I saw some marvelous shipbuilding. The hard facts concerning the performances of the shipyards in the east are that this plant, the plant at Fore River, and other plants in the Boston district have not a mark unequalled by any shipyard in the United States."

Undoubtedly the "hard facts" Mr. Schwab had in mind included the fact that when it was decided to build these destroyers there was no plant in which to build them.

On October 7 of last year, when the first sod was turned, the site of the Squantum Works was a salt marsh. It is located between Quincy and Boston on the harbor, some two miles from Atlantic and about a mile and a half from a main trolley line. The ground was too low and marshy to be of any previous value and was separated from the mainland on the Boston side by a salt river. Some two months later a contract was signed between the Navy Department and the Bethlehem Shipbuilding Corp. for a series of destroyers, the first of which was to be launched in nine months' time. Taking into consideration the fact that the building operations had scarcely started and that previously two years had been required for the building of a destroyer, such a promise of delivery seemed almost impossible. But for all this and the approaching winter weather, the first boat was delivered on time—and, in fact, two months and twelve days ahead of time. The automobile truck was greatly responsible for the breaking of construction records. The speed of construction was eight times that attained in ordinary industrial work.

To give an idea of the vastness of the plant which had to be built and the correspondingly large amount of preliminary work needed to prepare the site for occupancy, a few statistics follow:

One and one-quarter million cubic yards of fill were needed to prepare the site.

Fourteen thousand piles were driven, which, if placed end to end, would extend for nearly one hundred miles.

There are included in the plant two miles of macadam roads joining the different buildings, six miles of broad gauge and two miles of industrial railroad tracks and five miles of trolley track.

Two hundred and fifty thousand panes of glass are in the factory window sash; altogether there are twelve acres of glass in the buildings.

The total roof area is thirty acres.

Thirty miles of piping were installed.

Eight thousand gallons of paint were used.

Ten million feet of lumber were used. It would require a train of freight cars forty miles long to haul this lumber.

Eleven thousand tons of structural steel went into the buildings.

Five thousand freight car loads of building material were delivered.

The engineers and architects—Monks and Johnson, of Boston—who designed the plant and supervised its construction, had over two hundred men in their organization, and the Aberthaw Construction Co. had fifty-six hundred men on their pay-roll.

As can be readily judged when this work was started, the factor of prime importance was speed, with due regard for cost of the ultimate buildings. Accordingly the engineers and architects laid out the work to secure the desired results, and perfected a smooth working organization among the different companies engaged in the work. The building contract was awarded to the Aberthaw Construction Co.

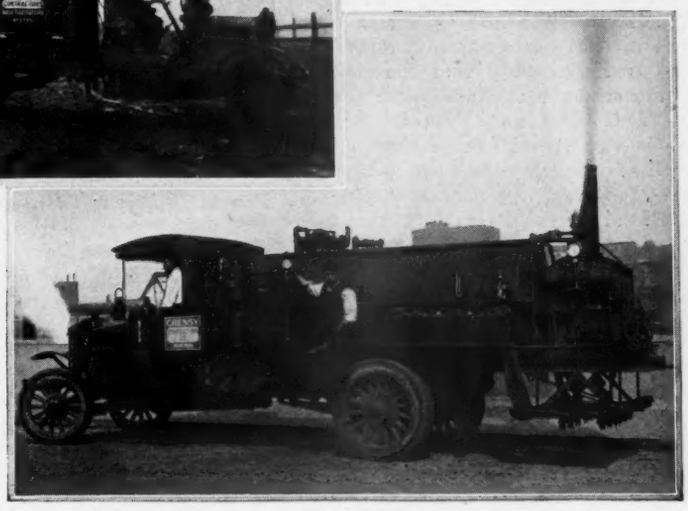
The first steps in the building operations after the layout of the ways and buildings had been determined were to prepare the site. As noted above, one and one-quarter million cubic yards of fill were required, and here is where the motor truck started its prominent part. It was first necessary to start the fill from the Quincy side and to build a road over the marshes for about a half mile. This roadway had to be raised and planked, for at high tide parts of it were under water. Later a bridge was built to connect directly with the Boston roads and the electric car line to Boston.

Amount of Work Done by Trucks

It was necessary to dredge the harbor in front of the ways, and this was performed by suction dredges, which discharged on the marsh. In this way three-quarters of the fill was supplied,

Bird's-Eye View of the Plant at Squantum, Massachussetts

A Minimum of Labor in Placing the Fill is One Argument for the Use of Trucks.



Dumps Were Hydraulically Operated.

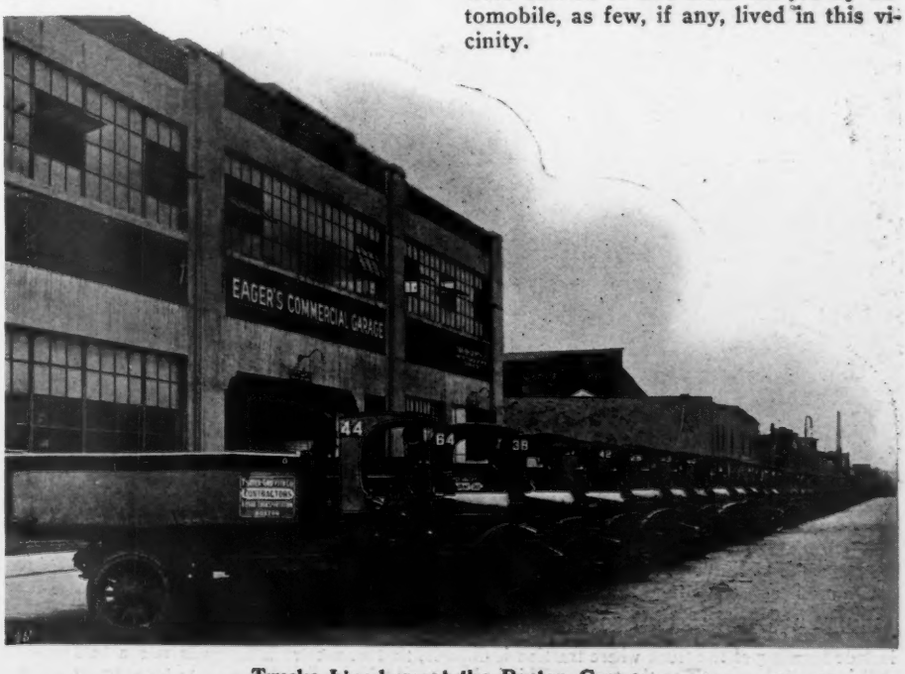
but Boston Harbor is muddy, and a dry fill was necessary. This dry fill totalled three hundred and twenty thousand cubic yards and of this amount automobile trucks delivered fifty thousand loads or two hundred thousand cubic yards. In this connection four cubic yards were allowed to a truck, due to the character of the material and the winter weather conditions. Besides the dry filling, trucks were used to deliver crushed stone from Quincy, and cement, lumber and other building materials from Boston. There was a total of nearly two hundred trucks and automobiles used in this work. The main transportation contract was let to the Taylor Griffith Co., which had a fleet of about seventy trucks in use. During the length of this contract, from October to January, they had an average of fifty trucks working twenty-two hours. Besides this equipment twenty to twenty-five trucks were hired. These trucks were of the metal body type, with hydraulic operated dumps. Due to the nature of the ground and the material to be hauled, no trailers were used. After the work got underway a broad gauge railroad track was built to the site for the delivery of the remaining dry fill and such material as came from a distance or heavy structural steel, etc. The main roads about the site were macadamized to join the main roads to Quincy and Boston, which were of great advantage; still it was necessary for the trucks to deliver their loads of sand about the site. It might be stated here that among the great advantages secured from trucks in point of time and efficiency are the unrestricted mobility and adaptability for dumping where the fill is needed. In contrast to dumping from railroad cars the advantage is great, for tracks do not have to be laid and changed continually, nor is so much labor required placing the fill. In these uncertain times it is not possible to secure a steady flow of building materials, and for that reason men have to be switched from one operation to another, so for that reason it was necessary to change the direction of the filling, which was easily accomplished by the motor truck.

Hauls and Methods of Loading

The main sand haul was a round trip of four and one-half miles, and the rock haul was nine miles. The roads in the latter case were first-class from the rock bins to the site, and a round trip averaged one hour and five minutes. With the sand it was different, for there was a mean haul out of the sand pit and likewise around the site, so that the round trip was only five minutes shorter. The trucks were driven alongside a steam shovel and loaded directly. In the case of hauling supplies from Boston, the flat type of body was used, except for cement and material which would stand dumping. Besides the difficulties of hauling about marshy ground, New England supplied its severest winter on record.

When operations were at their peak the temperature was at or below zero for days at a time, evidenced by thirty-two inches of ice in the harbor, and the thermometer went as low as twenty degrees below zero. But, in spite of this cold weather, the trucks operated by night as well as day. Mr. Griffith, of the hauling company, said that he had never done work under such trying conditions and doubted if any one else in New England had had such an experience.

Before the work of motor transportation got under way it was evident to those in charge that its volume would be stupendous, and for that reason a special department was formed, under supervision of the engineers and architects to handle this work alone. It consisted of six men, who worked for the Aberthaw company, to keep records of material needed, such as sand, rock and building materials, and when it should be delivered. They also had men along the motor truck routes to check any delays due to breakdowns. The Aberthaw Construction Co. would figure their requirements for transportation in advance, and advise the Taylor-Griffith Co. the day before how many trucks would be devoted to any certain particular work. This was made possible by previously determining the relative amount of work one truck could perform—such as how much tonnage from Boston or how many yards of fill per day. The transportation company on their part organized a department on an efficient basis. A manager supervised the work and had one field foreman and a timekeeper, who also checked the loads delivered under him for each shift. The foremen were supplied with Ford cars. There were one hundred and ten to one hundred and fifteen men on the payroll as an average. This system was found efficient in keeping the trucks moving to their maximum capacity. The truck drivers and helpers were carried to and from the job by automobile, as few, if any, lived in this vicinity.



Trucks Lined up at the Boston Garage

A complete set of "Spares" was kept at the garage, so that a truck could be completely rebuilt if necessary

A heated temporary garage to house six trucks was built at the job; a larger one was not necessary due to the continuous usage of the trucks. All minor repairs were made here, which included changing wheels. For major repairs the trucks were sent to the Boston Garage, where sets of "spares" are kept even to extra engines. Here a machine shop is available and trucks can be completely rebuilt. It was found necessary to keep three or four mechanics at the temporary garage, who, besides making repairs, looked after the general upkeep of the machines.

A record of each truck was kept, showing the duty it performed and the operating labor and repairs costs chargeable to it. This card was made out daily. Such records show that there were only five to six trucks which did not perform their twenty-two hours of work daily. This means less than ten per cent of the entire fleet undergoing temporary repairs. This may seem a little high, but not under the conditions causing many frozen hands and feet. The greatest difficulties were experienced on the night shifts during the cold weather. The sand was frozen; the steam shovel operators could not work with precision due to cold weather and poor light, so that accidents did happen. Trouble was experienced by the pumps freezing while the machines were running, which stopped the circulation. Another difficulty with the night shift was that the same class of men could not be secured as on the day shift. To balance these difficulties the roads were clearer, and quicker time could be made. However, even with the rivalry between day and night men, night records are not quite so gratifying. This was to be expected.

Monks & Johnson express themselves as highly pleased with the results obtained by motor transportation as regards efficiency and saving in time and cost. They point out advantages secured by truck mobility and the delivery of material to the exact spot where it is needed. For an example, the foundations for a building may be completed before the site has been properly prepared; in fact, the superstructure may be well along and trucks can then be used to make the necessary fills, while dumping from railroad cars would be prohibitive. Instances such as this greatly expedite building construction. Two newer shipyards are now being built from plans by the above engineers and architects, one at Wilmington, N. C., and the other at Alameda, Cal. The latter will eclipse the Squantum yard in size and be the largest destroyer plant in the world. However, the Squantum plant will retain the distinction of being unique in that all the work of ship manufacture is roofed over and will be carried on under just such conditions as motor trucks are built.

Besides the new work a large addition is being built to the Bethlehem plant at Sparrows Point, Md., and the engineers are looking forward to the motor truck playing an important role in speeding up the construction of these different plants.

Now we can better appreciate the remarks of Mr. Schwab and the "hard facts" he referred to and the great assistance of the motor truck in overcoming difficulties experienced in the building of the Squantum "Victory" Plant.

Hurlburt Educating Truck Drivers for Overseas Service

The Hurlburt Motor Truck Company, New York City, which concern is supplying a large number of trucks for the Y. M. C. A. overseas service, has adopted an original plan of educating the drivers to obtain maximum service from their machines. This step was brought about by F. W. Seamans, of the Y. M. C. A., and sales manager R. W. Walker, of the Hurlburt Motor Truck Company. The Y. M. C. A. men are given a three weeks' course. The lessons include shop work and operating in traffic and include handling of the truck where traction is difficult; that is, the truck is driven into a field where skill is required to extricate the truck. This is done to obtain conditions similar to those under which the trucks will be operated abroad.

Protest Against Restricting Motor Trucks From Certain New York Streets

New York City traffic officials have adopted and put into effect a new set of rules which restrict the use of commercial cars from certain streets. These regulations are bringing forth protests from many business concerns using motor trucks, particularly those located and using Fourth avenue and Lafayette street up to 34th street. In these complaints it is pointed out that barring commercial traffic from Fourth avenue below 34th street, the busiest uptown wholesale drygoods section, would work great hardships.

Certain thoroughfares are now restricted to the use of passenger cars, and others for commercial, the latter being barred from the following streets:

Canal street, Lafayette street to the Bowery.
Lafayette street, Duane street to Astor place.
Fourth street, Lafayette street to West Broadway.
Lexington avenue, Twenty-third street to 125th street.
Vanderbilt avenue, Forty-second street to Forty-fifth street.
Fourth avenue (Park avenue), Astor place to 125th street.
Madison avenue, Twenty-third street to 125th street.
Fifth avenue, Waverley place to 125th street.
Seventh avenue, Greenwich avenue to 125th street.
Broadway, Chambers street to 125th street.

The following are limited solely to commercial car travel:

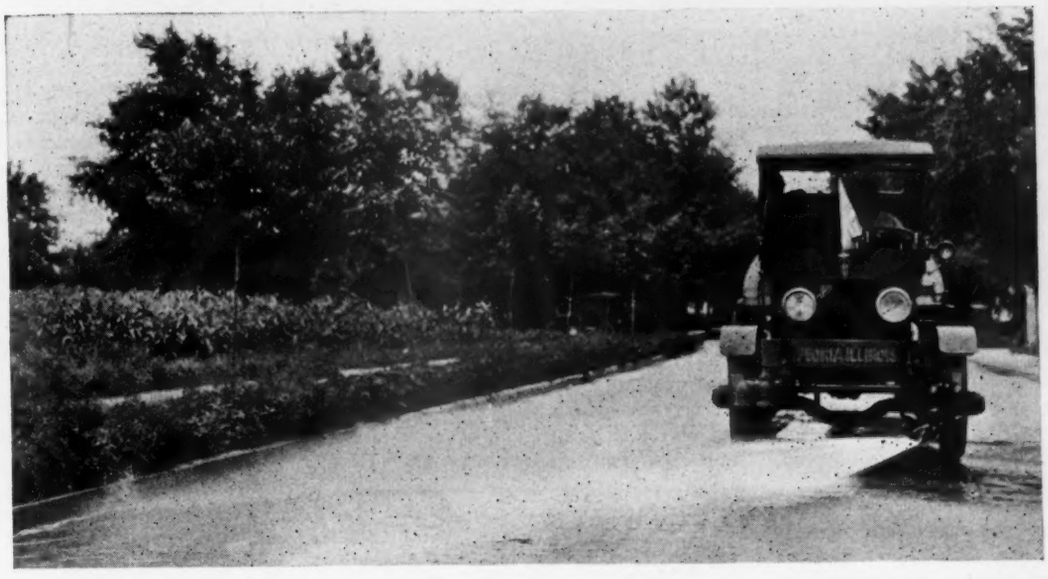
First avenue, Houston street to 125th street.
Second avenue, Houston street to 125th street.
Third avenue, Fifth street to 125th street.
Sixth avenue, Third street to Fifty-ninth street.
Eighth avenue, Abingdon square to Fifty-ninth street.
Ninth avenue (Columbus avenue), Fourteenth street to 110th street.
Tenth avenue (Amsterdam avenue), Fourteenth street to 125th street.
Park row, Duane street to Division street.
Bowery, Division street to Canal street.
Bowery, Grand street to Fifth street.
Centre street, Pearl street to Broome St.
West Broadway, Vesey street to Third St.
Hudson street, Chambers street to Fourteenth street.

Commercial car drivers may deliver or receive goods, however, on any of the restricted streets by entering and leaving the restricted avenue by the nearest intersecting street. The new rules do not apply to the fire and police departments, hospitals, public service corporations, U. S. mail, the army and navy, city departments, physicians and newspapers.

Vim Half-Ton Truck Not to be Discontinued

A rumor which has been circulating among the trade to the effect that the Vim Motor Truck Company, of Philadelphia, is to discontinue manufacturing the Vim ½-ton truck is unauthentic. The facts are entirely to the contrary. Although the Vim Company is rapidly developing and increasing production on its heavier models, there is to be no let up on production of the ½-ton job, in fact the company is now so busy that it is turning down more business than it has been ordinarily accepting.

Motor-Truck Flushing Apparatus Saves Peoria Money and Keeps Streets Dustless



Modern Equipment Proves Highly Satisfactory. Displaces About $4000 of Horse-Drawn Apparatus. Saves Over $70 per Day

By C. P. SHATTUCK

A TIFFIN 3½-ton chassis equipped with a 1200-gal. tank and street flushing apparatus is saving the city of Peoria, Ill., over $70 a day, according to John R. Grant, Superintendent of Streets. The truck was placed in service about May 1 of the present year and has retired to the city's graveyard of antiquated municipal apparatus about $4000 worth of horse-drawn street cleaning equipment, to say nothing of affording the business and residential sections relief from the clouds of dust attendant upon street cleaning with brooms and sprinkling carts.

Peoria has approximately about 94 miles of streets and alleys and about 85 per cent is brick pavement, the balance being wood creosote blocks and asphalt. The blocks (streets) average 1892 square yards all over the city, the residential sections of which are on land considerably higher than the business section which slopes to the Illinois river. There are, consequently, grades which impair the efficiency of the horse, particularly in hot weather. High temperatures and humidity are characteristic of Peoria.

The municipal authorities were finally convinced by Commissioner of Public Works Sherman W. Eckley that Peoria could be made a dustless town by the use of a motor-propelled street flusher and that the cost would be considerably less than with the horse-drawn equipment. How well the prediction was fulfilled is indicated by a letter written by the superintendent of streets in reply to a letter from the mayor, who desires cost figures after the first month of operation.

The figures showed that the truck flushed 1581 blocks of brick, 665 of asphalt and 323 of the wood creosote pavement, a total of 2569, in 39½ days at a cost of 10 1-5 cents per block. The report also included the statement that it required 57 days for the horse-drawn equipment to clean 1190 blocks and at a cost of 28½ cents the block. The mayor was convinced that the motor apparatus was satisfactory.

Previous to the adoption of the truck, street cleaning was by horse-drawn sprinkling carts and brooms, the sprinkler preceding the broom which raised clouds of dust and failed to thoroughly clean the pavement. Under adverse conditions the horse-drawn equipment could not maintain any schedule, particularly in extremely warm weather.

These handicaps are overcome by the motor-driven apparatus having a flushing nozzle on either side of the truck and two in front. The streams of water are directed under a variable pressure, and the nozzles are so set that the angle of the streams prevents loss of the filler between the brick pavement. In other words, the water is forced across the brick at approximately right angles to the length of the brick which tends to sweep the dust and dirt along and without digging away the filler.

Less Cleaning Necessary With Modern Equipment

Another advantage over the former methods is that the dirt and dust is flushed to the curb, and being light is carried along by the water to the catch basins. The heavier material, such as leaves, twigs, etc., accumulate in small piles and slowly disintegrating, are swept along to the catch basin a little at a time. The greater volume of water flushes the catch basin, keeping it clean, and the heavier material, floating as it does, is readily conveyed to the sewer.

There remain certain deposits of dirt, etc., swept into the gutters and which do not flush to the catch basin. These are swept into piles and removed by men and horse drawn equipment, a process termed "pick up" in street cleaning.

The introduction of the truck has reduced the number of crews or men and teams required to pick up the dirt, etc. Formerly there were seven men to two teams whereas now five men and one team accomplish practically the same results. An examination of the records of the street cleaning department on June 15, 1917, and June 15, 1918, which may be taken to be an average performance of both types of equipment, shows that on the former date 41 men and nine teams picked up 219 blocks of brick, asphalt and wood, obtaining 38 loads. With the motor truck flushing the streets 30 men and six teams picked up 188 blocks and 22 loads. It should be explained that with the motor driven flusher there is considerably less material to be picked up and that the five routes formerly requiring 10 men and a team are now cared for by 8 men and one team.

Cleaning Done Where Most Necessary

The method of cleaning probably differs from conventional practice in that superintendent Grant does not believe in fixed routes; that is, the city, with the exception of the down town sections, is not divided into zones and each zone cleaned according to a schedule. The daily routing is determined by supertintendent Grant who covers from 40 to 50 miles daily in his Ford inspecting the condition of the streets. "My

plan is similar to that of the housekeeper," said Mr. Grant. "I start out in spring and have a good house cleaning, get the streets spotlessly clean. Thereafter I keep right after them. Certain streets have more traffic than others and are consequently twice as dirty as the roads largely used by motor cars." Having been connected with the department for a great many years and knowing Peoria's traffic, he is able to arrange the routings to obtain the greatest efficiency from the truck and pick up crews.

The trucks work two shifts of eight hours each, a day and night shift, and seven days the week from April 1 to November 1, or eight months. The driver constitutes the truck crew, operating the machine as well as the levers controlling the flushing nozzles and the pressure which is varied according to the type of pavement and its condition. The driver also attends to the renewing of the water supply in the tank, the fuel and oil, and makes minor repairs.

The pick up men and teams obtain the routings compiled by the superintendent each morning before seven o'clock, and during the heated term frequently begin work as early as five o'clock and sometimes earlier but they quit as much earlier as they start before seven. The day driver of the truck also starts earlier, particularly when asphalt pavement is to be flushed, as it is not so soft or spongy in the cool of the morning and is more easily flushed and cleaned.

In addition to superintendent Grant's going over the various streets and noting their condition, each team and crew, also truck drivers, must file a report daily with him and a clerk in the department. A slip with carbon copy is made out, giving the name of team, men, hours, name of street from and to, kind of work, number of brick, asphalt blocks, route and number of loads. Either the original or duplicate goes to Mr. Grant who keeps a record of the work for several reasons, one of which is to note if a crew is falling behind in its work and why. The records also enable him to know what crew cleaned certain streets, data useful when the work has not been properly performed.

Detailed cost figures show that the cost of picking up and horse drawn equipment for the day mentioned was $174.55 against $101.70 with the motor driven flusher replacing the horse drawn sprinklers and brooms, or a saving of $72.70 the day. In addition to reducing the number of men and teams, the motor truck has replaced three broom teams, a sprinkling cart, a combination broom and sprinkler and two Kindling types of cleaners, equipment now for sale at a bargain price. In addition, the truck has eliminated a foreman.

Superintendent Grant states that it costs $8 a day for the two truck drivers and that 24 gallons of gasoline at 25 cents the gallon and two gallons of oil at 80 cents the gallon are consumed daily. Fuel and oil are obtained at any filling station of a certain company, the driver being supplied with coupon books. While no repairs have been incurred by the truck to date Mr. Grant makes a charge of $6 the day for future repairs, also a charge of $6 the day for interest, insurance and depreciation. He admits that these figures are high but says he is going to be on the safe side and have a balance to buy another truck when needed.

The charge of $12 the day for repairs, interest, tires, insurance and depreciation are too high, particularly when it is considered 16 hours are charged against the truck each day. If it is used as it was in a patriotic parade, the time is charged. At the rate of $6 the day for repairs, this amounts to $1284 for the 214 working days or over $1000 more than is charged against a similar type of apparatus in service in another city and under similar conditions. Even allowing the truck wears out two sets of tires during the season, the cost of these and for average repairs would not amount to $1000 for 214 days.

The cost of operating the superintendent's Ford are not included as this was in service with the horse drawn equipment as were certain foremen.

Mr. Grant proposes to utilize the flusher to remove snow and believes that it can be readily displaced even on 40-foot streets. At least he is going to attempt the work as it cost the city $3600 for manual labor last winter. He stated that his appropriation of $33,000 annually would not suffice with the former equipment, as wages have been advanced 25 cents the day for men, 70 cents the day for teams and the pay of foremen increased from $3 to $4.50 the day.

Peoria is a dustless town as inhabitants and visitors will testify, and this sanitary condition has been brought about by the efficient use of a motor-propelled street flusher.

Horse-Drawn Equipment and Pick-Up

	Men	Teams	Blocks	Dirt Loads
	7	2	33	8
	8	2	25	10
	4	1	4	5
	5	1	25	4
	7	2	31	6
	31	8	118	33
	*10	1	101	5
Totals	41	9	219	38

Pick-Up With Motor Equipment

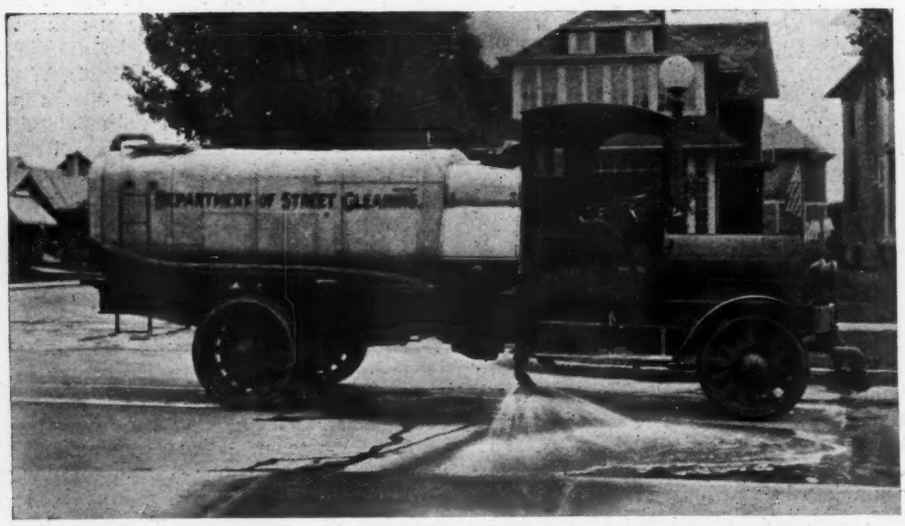
	Men	Teams	Blocks	Dirt Loads
	5	1	18	3
	5	1	19	4
	5	1	15	4
	3	1	32	3
	4	1	20	3
	22	5	104	17
	*8	1	84	5
Totals	30	6	188	22

Pick-Up Costs

Cost of labor and teams, horse drawn equipment $174.55
Cost of labor and teams, motor truck. 101.70

Saving in labor and team costs..... $72.85

*Teams and crews used on defined routes.



The Tiffin Motor-Propelled Street Flusher, Which Has Effected a Saving of Over $70 per Day for the City of Peoria, Ill.

Routing and Dispatching Trucks

One of the best-known companies of Pittsburgh is the Youghiogheny Coal Co., which operates a fleet of four 3½-ton trucks.

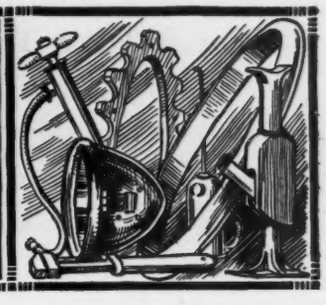
The business of this company has grown so rapidly that it has had to change from team delivery to motor trucks to meet the emergency. Its customers are spread over a large area in this section, and to make prompt deliveries in the old way would take too many teams. The cost would be much more than for motor truck upkeep. It was sometimes found necessary to use three and four horses on one wagon. To replace the trucks it would take from eight to twelve teams and mean the feeding of from twenty to twenty-five animals. The company states the original investment for trucks was much less than for horse and wagon equipment.

During rush periods, especially the colder months of the year, it was difficult to route the teams systematically and to maintain a regular schedule of trips necessary to adequate service.

When the use of teams was discontinued, and the motor delivery installed, the eight delivery districts were redistributed into twelve. The readjustment increased the number of daily trips by four, as one trip is necessary to each district daily.

Making the usual number of trips, and an additional one-half as many more, and carrying double the quantity of coal, has added to profit sheet of this company.

TRUCK ACCESSORIES AND APPLIANCES

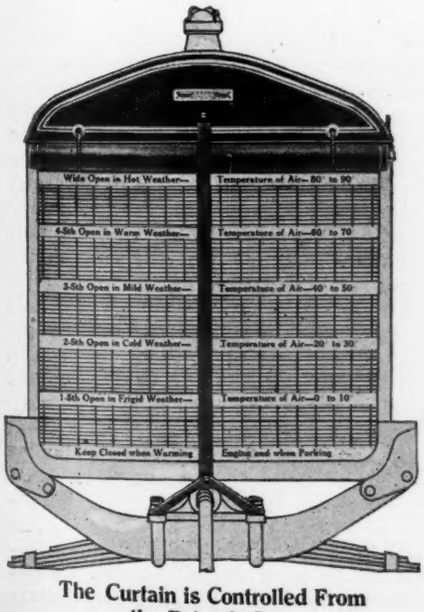


Harac Radiator Temperature Controller

A device to control the amount of air passing through the radiator, thereby controlling the temperature of the engine is being manufactured by the Harac Sales Co., 34 Drexel Bldg., Philadelphia, Pa. It is known as the Harac Radiator Curtain. It is operated from the driver's seat. With this air regulator closed, the temperature of the engine is quickly brought to the proper degree in a few minutes. The device when fully opened does not retard the air flow whatsoever.

This device is so designed that the covering is from the top of the radiator down, not from the bottom up. Due to the fact that water goes from the top to the bottom of the radiator, this is an advantage in cold weather, as no heat is lost while the water is flowing to the uncovered portion at the bottom. When the exposed portion of the radiator is reached, more than enough heat is still held in the water, until it returns to the hot engine, to prevent freezing at the base, the point at which freezing generally occurs.

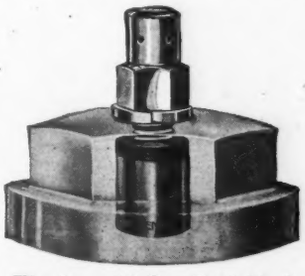
The control from the driver's seat is by cord, and any portion, from closed to wide open, may be obtained by the driver. The rod on which the curtain is rolled has a red knob extending beyond the radiator, which can readily be seen by the operator of the car, thus advising him of the exact amount of radiator surface uncovered. The illustration shows what portion of the radiator should be covered, according to the weather, in order to keep the engine at the most efficient temperature. The gasoline saved this way, runs from 3 per cent to as high as 30 per cent, as stated by the manufacturer. The metal parts of this air regulator are finished with either enamel or nickel. The device is easily and quickly installed without marring the radiator. The price is $5. It is made for 1917 and 1918 Fords.


Wide Open in Hot Weather—
Temperature of Air—80° to 90°
4-5th Open in Warm Weather—
Temperature of Air—60° to 70°
3-5th Open in Mild Weather—
Temperature of Air—40° to 50°
2-5th Open in Cold Weather—
Temperature of Air—20° to 30°
1-5th Open in Frigid Weather—
Temperature of Air—0° to 10°
Keep Closed when Warming
Engine and when Parking

The Curtain is Controlled From the Driver's Seat

Prevents Gasoline Evaporation

The Imperial Brass Mfg. Co., of 1200 Harrison St., Chicago, Ill., is marketing a new accessory, a device to prevent the waste of gasoline by evaporation when jolted through the vent of the gasoline tank. This accessory is known as



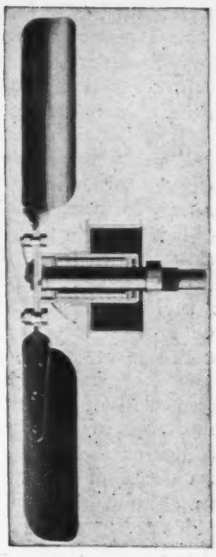
The Imperial Gas-Tank Seal

the Imperial Gas Tank Seal and operates equally well with gravity or vacuum systems. It is simple and cannot get out of order.

The valve is made to admit air automatically to replace the gasoline which passes through to the carburetor. It is easily installed, it being only necessary to bore 3/8-in. hole in the filler cap. The Imperial Company states the gasoline expense can be reduced by equipping a car with this gas tank seal. The retail price is $3 each.

Hyatt-Equipped Auto Parts Fan

Hy Duty is the trade name of a fan manufactured by the Automotive Parts Co., 1509 Bates St., Indianapolis. It is designed to assist cooling on all types of gasoline engines. It is equipped with a Hyatt bearing to carry the radial load, since this is the main load in the cooling fan. To care for the thrust load, it has arranged a plain thrust bearing, consisting of a floating bronze washer, between two ground steel surfaces.



The Hy Duty Fan
This fan has been carefully designed and is equipped with a Hyatt bearing.

This fan is made entirely of pressed steel, which gives it great rigidity with light weight and good balance. The bearings are enclosed in oil-tight and dust-proof housings. Spindles are extremely large in diameter and made from heat-treated alloy steel, hardened and ground. The blades are of the curved type and designed to furnish a maximum air volume, with a minimum amount of horsepower. Sturdy spiders, to withstand the vibration and prevent breakage, used to hold blades in position.

The A. E. M. Freezometer Syringe

This syringe is so constructed as to form a thoroughly accurate, reliable and positive instrument for ascertaining at what temperature or deg. F. a mixture of alcohol and water will freeze. By a simple compression and releasing of the bulb, sufficient liquid is drawn from the automobile radiator, and at a glance it is known at what temperature the liquid will begin to freeze. A second compression of the bulb replaces the liquid without spilling a drop or soiling your hands. The construction of the cylinder, no matter how careless the user is in handling the instrument in making the tests, insures at all times the vertical position of the hydrometer, thereby giving an accurate reading, inasmuch as the hydrometer cannot swing to the side of the barrel.

It is made in one piece of glass. The device is absolutely guaranteed and is manufactured by A. E. Moeller, 261-5 Sumter St., Brooklyn, N. Y.

Turbine Carburetor Permits Use of Heavy Fuel

A turbine carburetor, which is operated by the passing of air in the carburetor, is being produced and marketed by R. U. Trader & Co., McKeesport, Pa. This is designed principally for trucks or heavy duty service.

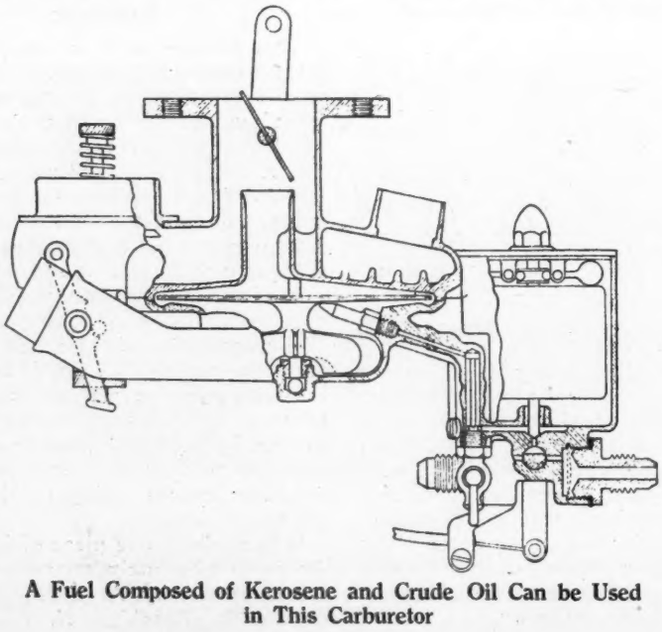
By means of this turbine the fuel is expanded and broken up into fine particles, which will more readily mix with the air charge. The maker states it uses less fuel and can be operated with good results with heavy fuels. The equipment of the carburetor is complete, it being supplied with the necessary controls, gasoline starting tank, extra pipe, and complete instructions for installing and adjusting.

The main air supply is taken from a stove on the exhaust pipe through the small air turbine, which directs it against the blades of the turbine rotor, revolving it by means of the shaft. This warm air is in contact with the disc and evaporates the fuel spread thereon by centrifugal force from a jet at the center of the disc and passes around the circumference of the disc over the circular exhaust heated wall of the disc casing, so that should any of the drops of fuel try to pass around the edge of the disc the sudden change of direction would impinge them against the hot wall, where they would readily vaporize and pass along with the vapor from the disc to the throttle passageway. The gases enter the passageway through a throat and are so directed that the air from the auxiliary air valve will surround the gas in its passage through the manifold.

The Trader company claims that the evaporation depends on three things, namely, the surface offered, the temperature, and the carrying away of the vaporized gases from the point of evaporation. It claims to have embodied these three requisites in its product.

To supply a rich mixture upon the sudden opening of the throttle, a higher vacuum is produced in the disc chamber, which is stated to give the additional fuel more acceleration until the turbine speed equals that of the air flow. For the sudden closing of the flywheel action of the turbine rotor and disc creates a pressure in the disc chamber, diminishing the fuel flow from the nozzle. The bearing lubrication of this part is from the fuel itself or by an oil reservoir to one bearing and through the drilled shaft to the other bearing.

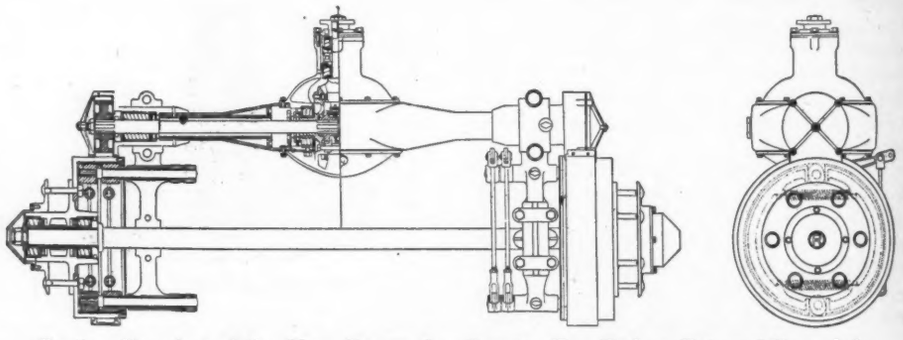
The float chamber construction is novel, using a single float for alternate operation of two grades of fuel. The float always floating in the lighter grade of fuel permits the reversal of fuel supply to the engine almost instantaneously with the change of the three-way valve. Trader carburetors using heavier fuels than kerosene will differ slightly from the present type in some details, but the type described herewith is recommended for a fuel composed of half kerosene and half crude oil of the thin grade.



A Fuel Composed of Kerosene and Crude Oil Can be Used in This Carburetor

The Badger External-Gear Axle

The Badger 1½-ton external gear axle is the latest product of Harding & Co., 122 S. Michigan Ave., Chicago. The leading features of this axle are external driving gears, which are enclosed and absolutely dust-proof, and the Bailey Non-Stall differential. The maker claims to have incorporated in it the advantages of the spur and pinion type of drive. Dual expansion brakes are provided, dirt proof and efficient. Hyatt bearings are used for carrying radial loads, and Bantam bearings for thrust. The hub is of the same type as used on many other jobs with success, it resembling steamship propeller thrust construction. This axle, of course, has separate members for driving and load carrying.



Section Drawing of the New One and a Quarter Ton Badger External-Gear Axle

Haulage Costs Reduced by Trailers

The increase in profits made possible by the trailer is shown in the following data on hauling prepared by W. J. Scratchley, of the Heavy Hauling Co., Seattle, Wash.:

	Without Trailer	With Trailer
Distance round trip	90 miles	90 miles
Distance with load	50 miles	50 miles
No. trips per week	5 trips	5 trips
Gasoline per trip	12 gal.	15 gal.
Miles per gal. gas	7½ miles	6 miles
Qt. oil per trip	4 qts.	5 qts.
Miles per qt. oil	22½ miles	18 miles
Tons pay load, trip	3½ tons	6 tons
Ft. dry lumber p. trip	4000 ft.	6500 ft.
Income per trip @ $4.50 per M. ft.	$18.00	$29.25

Figuring cost of gasoline at 22c a gal. and oil at 25c. a qt., the cost of fuel per trip without trailer is $3.64 and with trailer is $4.55. Deducting fuel costs, the profit per trip is $14.36 without trailer and $24.70 with trailer, or $10.34 more with the trailer. These figures do not include the investment or depreciation of the trailer. Mr. Scratchley uses an old 1½-ton truck chassis with steering gear, converted for use as a trailer. The trip is between Monroe, Wash., and Seattle, and the reason for the longer return trip to Seattle is that a detour is necessary when coming back with the load. His monthly income runs about $250 more per month (above fuel costs) with the trailer than without it.

The distance is great enough to make it impossible for more than one trip per day either with or without the trailer, the trip taking about 8 hours running time for the 90 miles. The average number of trips per month is 22.

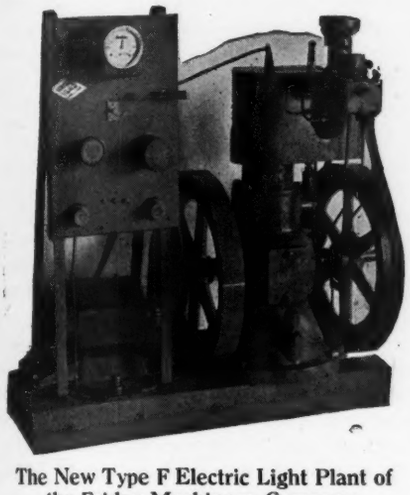
The truck used by the Heavy Hauling Co. is an Acme, made at Cadillac, Mich.

Disco Electric Mfg. Co., Detroit, Mich., will handle sales and service on Detroit batteries, made by the Detroit Battery Co., Detroit, Mich.

New Type Electric Light Plant

The Friday Machinery & Supply Co., Sigourney, Iowa, is producing a new type electric light plant, known as type F. The illustration shows the plant which is very well suited for garage use, lighting, battery charging, etc., and can be used at the same time for air compressor and other light work. It also furnishes the garageman with another line to sell to farmers and others.

The maker states this plan to be a combination of tried mechanical principles and that it will operate efficiently. It is simple and easily understood by anyone. It is manufactured in the one size only, although other sizes can be secured on special order. This plant can be furnished without batteries where batteries are not needed. The engine is operated by kerosene, throttle governed. The cylinder is air cooled, a 4¼ x 4¼. The generator is 750 watt, which will light forty 15 watt lights. The battery is a Hiray Exide 80 ampere hour. It will light the equivalent of twenty 15 watt lights for 8 hours on one charge. The controlling rheostat has 150 points of variation. The ampere hour meter shows the amount of charge in the battery, at any time. When the batteries are in need of charge or when fully charged, a signal bell or light gives warning.



The New Type F Electric Light Plant of the Friday Machinery Company

Arrow Grip Chains Parkerized

The Arrow Grip Mfg. Co., Inc., of Glens Falls, N. Y., well known manufacturers of the Arrow Grip non-skid chains, described in the September, 1917 issue, page 206, is now manufacturing its product thoroughly Parkerized. This rustproof process leaves the Arrow Grip chain with an attractive finish. This system is the same as used for rustproofing guns, etc., by the Government.

Stevens Bolts and Tap

Stevens & Co., of 375 Broadway, New York City, is offering to the trade a handy set of ten oversize cylinder head bolts and a special tap. There are occasions when a cylinder head bolt hole has had the threads stripped. This, of course, prevents proper compression and reduces engine efficiency. With a set of Stevens oversize bolts and the special tap any one can repair stripped bolt hole threads. The set lists at $2.

"Superford" Radiator Prices

The Superior Lamp Mfg. Co., 136 W. 52d St., New York City, announces the following prices on the Superford Radiator. The Superford '16 radiator listed at $28.50 has been increased to $30 each; the price of the Superford radiator '18 has been increased from $30 to $35.

The Superford Radiator

Auxiliary Spring Attachment

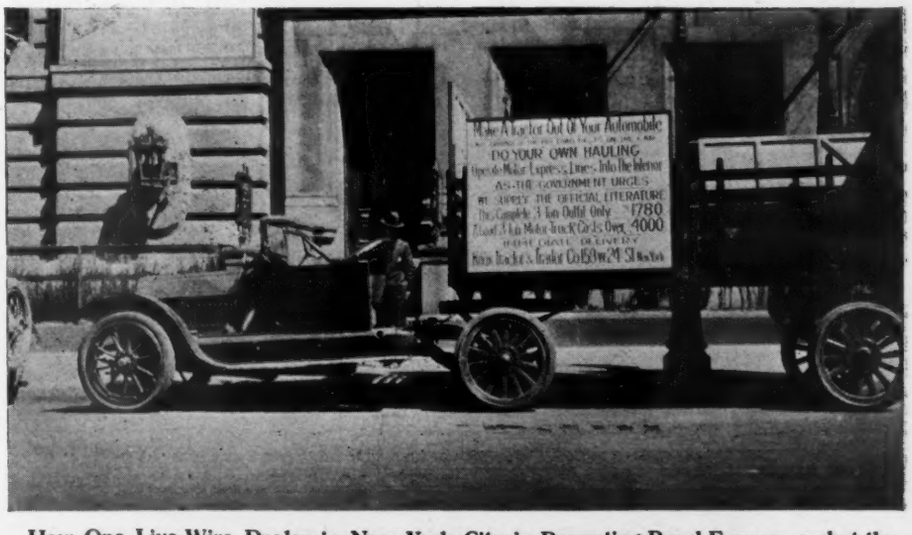
By the use of the Alford Auxiliary Spring Attachment the weight of the car is carried on both springs, and the top bracket fits into the square formed by the side members into the rear channel of the frame, and the bottom replaces the spring perch, enabling one to carry heavy loads on a Ford. The coil springs are made of 13-32-in. wire, 3-in. diam. and 8-in. long, the coil being between the two brackets. On installing these the rear end of the frame is raised about 2½ in., so that it is off the main spring and while empty or with a light load you are riding on the coil springs. When heavily loaded the coil springs will be compressed until they act together with the main springs. The cost for this attachment is $16 complete. It is manufactured by the Andrew Hoffman Mfg. Co., 5034 S. State St., Chicago, Ill. This spring system is absolutely guaranteed by the manufacturer.

Device Starts Cars Quickly in Winter Weather

The Imperial Primer is a device designed for the benefit of owners who have trouble in starting trucks in cold weather. It is claimed by the manufacturer, the Imperial Brass Mfg. Co., 1206 W. Harrison St., Chicago, Ill., that a truck or tractor equipped with this accessory will start easily and quickly in the coldest weather, and that it also prevents the usual winter-time drain on batteries and self-starters. It can be easily installed by a person with very small knowledge of mechanics.

Advertises Trailer and Boosts Return-Loads and Rural Motor Express

The use of trailers is increasing even in New York City. Live dealers are taking advantage of the increasing demand for the various types of trailers and a novel method of advertising the practicability of the trailer is being employed by the Knox Tractor & Trailer Co., 159 West 24th street. This concern is utilizing one of its units attached to a passenger car and has covered the trailer with four large signs, these pointing out the need of co-operating with the Government by adapting the used passenger car to commercial work. The signs on the right of the trailer are strictly patriotic in that they boost the Return Load movement and Rural Express. The sign at the rear is similar. The unit is attracting considerable attention and shows that the dealer is awake to the opportunities created by the demand for economical transportation. The advertising value is obvious and the plan could be adopted by those passenger car dealers who take pessimistic views of the proposed curtailment in the production of passenger cars.



How One Live-Wire Dealer in New York City is Promoting Rural Express, and at the Same Time Advertising in a Practical Manner the Advantages of the Trailer

Babcock Ambulance Body

H. H. Babcock Co., Watertown, N. Y., believes that the growing demand for home service ambulance bodies is great enough to allow it to design and build a body principally for this service. This company is the builder of the standard army ambulance.

This new body incorporates all the essential features of the Standard ambulance, while the weight and price is materially reduced. The new body is so designed that it can be mounted on any of the standard chassis of appropriate capacity.

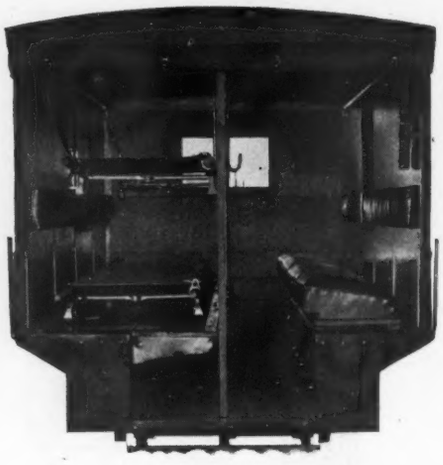
The new body is full panel type, affording complete protection in the severest weather, with doors on either side for access to patients. These doors are equipped with hooks, which permit an opening of about 4 in. for ventilation. A division panel back of driver's seat, with Pyralin window, protects the interior.

On one side of the driver's seat is a 5-gal. water tank, and on the other a cabinet for medicines and first aid kit. The canvas hood can be folded back against the body, and a canvas storm apron is furnished for the protection of the driver, enclosing him completely up to the line of vision. Irons on the sides of the body are provided to carry litters when not in use.

Lengthwise seats upholstered in finest Chase leather with back rests to match accommodate from eight to ten sitting patients. These seats fold over to the center and provide a deck for carrying the two lower litters, which are held from slipping by straps. The two upper litters are suspended by straps and hooks, working on springs, which absorb the jar. In loading the upper tier of litters the front straps slide back on rollway tracks. In these the front handles of the litters are inserted, and the litter is pushed forward into place. By this method it is possible to load the upper tier when the lower tier is occupied. The rear center post folds up out of the way when not in use.

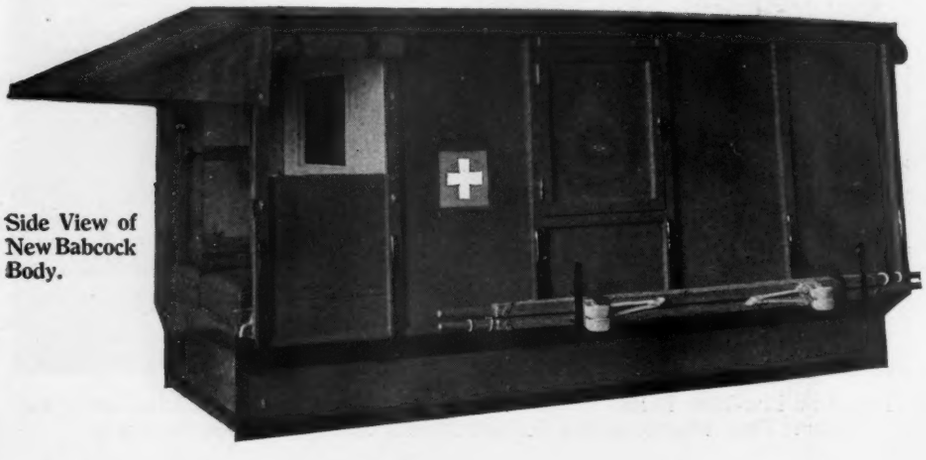
A folding rear step is attached to the tail gate, which when raised entirely encloses, with the rear curtain, the interior.

The special Babcock steel construction is used on these bodies and makes them very strong and light, and steel diaphragms under the seats impart a high rigidity throughout. The panels are ⅜-in. Vehisote, with one-piece Homasote roof, which permits a fine smooth finish for the interior. The exterior is finished in regular standard olive drab, and lettered as desired.



Interior From Rear

These bodies are constructed so as to readily knock down for shipment in a crate under 32 in. This economizes freight, and the bodies are easily erected by bolting together the few principal units.

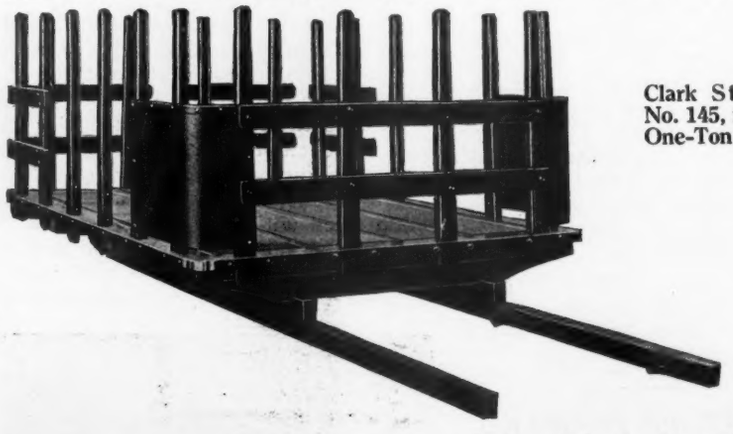


Side View of New Babcock Body.

Clark No. 145 Stake Body

This body has been designed especially for the Ford 1-ton truck. It has a loading space of 60 x 90 in. and the stakes are 36 in. high. Steel sign board rounds off the front corners of the body, each being 18 x 30 in. The stake pockets are mortised into the side sills and are of metal, and a heavy steel band extends around the entire edge of the body. The body and stakes are of clear hardwood throughout. The finish is dark green, with red stripings. The approximate shipping weight of this body is 520 lb.

The J. L. Clark Mfg. Co., of Oshkosh, Wis., is the builder. This concern also manufactures express bodies for the Ford 1-ton truck and for Ford unit attachments, as well as a stake body for Ford truck units. With many of these bodies can be combined the No. 125 All Season two-door cab. Other products of this concern include the open express bodies, the slip on bodies, panel bodies and a universal cab. This concern, in addition, is making a specialty of the manufacture of seats, seat bases, cabs and bodies for truck manufacturers who do not build any wood work.



Clark Stake Body, No. 145, for the Ford One-Ton Truck.

Wrench Sets

With a constant desire to manufacture an adaptable line of all-steel wrenches and tools, the Frank Mossberg Co., of Attleboro, Mass., has arranged its models in sets, and tools designed to meet the exact needs of the different lines of assembly and repair work, in a convenient form.

Such sets as the various small socket sets, Set No. 4 of open-end wrenches, the double-end sets, have proven very popular and are found to meet the many needs of automobile and general repair work. The No. 4 set shown is particularly popular in the trade, because of its wide range of sizes. The nine wrenches with their eighteen openings fit all U. S. and S. A. E. sizes from ¼-in. to ¾-in. bolt or screw diameters, thus providing a wide range of work.

General Service Set No. 1, Set No. 3 for automobilists, and Agricultural Set No. 2 of open-end wrenches, all contain a range of sizes to fit the particular needs for which the set is arranged, and, like Set No. 4, provide the most economical way of securing needed tools.

Mossberg Socket Sets, too, have been arranged in various sizes, so that economical sets may be had that are particularly adapted to assembly needs.

Set No. 14 is a complete set of sockets and tools for all repair needs.

Saving a Freight Car for Uncle Sam

By CHESTER A. GROVER

CHICAGO is doing its bit to relieve the strain upon the railroads. The freight congestion at the Chicago terminal was always a vexing question even before the war threw the excess burden on Uncle Sam's public carriers. Since war shipments began heroic efforts have been made to keep the cars rolling over the humps of the Chicago switching yards and keep her freight-house floors cleared from day to day.

New rulings of shorter time allowances to unload the cars with cumulative penalties for each additional day's offense have tended to teach the shipper that a freight car is not a storage warehouse, but even with all the punitive precaution, freight has piled up and cars have been continuously stalled in the Chicago yards.

The new Municipal Pier helped the lake-rail traffic situation partially, but the lake-rail transfer business is but a small fraction of the freight shipments and trans-shipments of the Chicago terminal. The benefits of the pier, even costing its millions of dollars, at best only touched the lake carrier situation; the problem of the rail-freight congestion was entirely unsolved.

Mr. McAdoo, in a visit at Chicago within the past few weeks, spoke of the railroad terminal as Chicago's big puzzle.

Since Mr. McAdoo has been at the head of the railroad department the motor express has come to the top as the chief auxiliary of the railroad. In fact, it was the Federal Government that pointed to the Rural Motor Express as the best way to save Uncle Sam a freight car.

Intercity Motor Express Lines, First Company to Enter Field

The first organization of Chicago business men to respond to the call of the National Government "to conserve foodstuffs and labor and to supply rural transportation" was the Inter-City Motor Express Lines. This corporation on July 22 sent out the first truck from Chicago from its main station, 4638 West Madison St. Since that day scheduled motor express service has been gradually perfected between Chicago, Aurora and Elgin, and intermediate points.

This territory, embracing the counties of Cook, DuPage and Kane, is an ideal district in which to work out the purposes of the government, as it takes in not only the City of Chicago, but the nearest real agricultural lands adjacent to the city. Except for a few small scattering farms, the agriculture in Cook county is confined to the activities of the truck gardener and the casual florist. Truck gardening, it is true, is a highly essential war industry, but hardly the farming which constitutes the back-bone of the country and which feeds the world.

The gentlemen interested in the Inter-City company are no "fly-by-nights," and the company has ample backing financially. That they have already secured the active good will of the business men in the towns through which they pass is evidenced not only by the good words spoken on every hand for their service, but by the growing volume of business secured. Each truck goes out more heavily loaded than the preceding one. The local good will of the new company has been partly secured through local agents, each one of whom has been selected because of his business standing in the community to which he is appointed. For the most part they are automobile dealers and garage men, and in some few instances former local expressmen.

The general manager is E. H. Lowe, and C. H. Bitters is the traffic manager. C. H. Freese, the Elgin manager, explained the schedule of service mapped out, briefly, as follows:

Driver Briggs is Proud of His Big Tractor and Semi-Trailer.

Truck leaves Chicago station (West Madison Street) 7.30 to 8 A. M. Goes to Elmhurst; to Lombard; to Glenn Ellyn; to Wheaton, Naperville and Aurora.

Truck leaves Elgin 7.30 to 8 A. M. Goes to Geneva; to Batavia, Aurora and return to Elgin. In the return trips to Chicago the truck leaves Aurora as near 1 P. M. as possible, following the above route, the position of the towns being in reverse order.

Two trucks meet at Aurora and transfer goods.

Another route, the regular schedule of which is being worked out, upon which trucks are already running upon as nearly a fixed schedule as possible is between Aurora, Plainfield and Joliet. Rockford will be included in one of the routes as soon as possible, which will be when new equipment can be secured.

Six new trucks are now in process of construction for the use of the Inter-City company. They are of the United Four-Wheel Drive Corp. make.

Rates for Service

The rates from Chicago to Aurora, West Chicago and intermediate points applying in the opposite direction are, first class, 90 cents per hundred weight, and second class, 60 cents.

Officers of the Chicago, Waukegan & Hammond Transportation Company
Right: President, William L. O'Connell. Center: Traffic Manager, W. H. Manley.
Left: Chicago Manager, W. L. Lederer

From Aurora to Elgin or in the opposite direction: First Class, 75 cents; Second Class, 50 cents. St. Charles to Aurora and Elgin or in opposite direction: First Class, 60 cents; Second Class, 40 cents.

From Aurora to Batavia or in the opposite direction: First Class, 60 cents; Second Class, 40 cents. Batavia to Elgin, 75 and 50 cents. Geneva to St. Charles, 60 and 40 cents. West Chicago to Elgin, 60 and 40 cents.

The minimum charges regardless of distance are 1 to 25 pounds, 40 and 60 cents; 25 to 50 pounds, 50 and 75 cents; 50 to 75 pounds, 55 and 83 cents; 75 to 100 pounds, 60 and 90 cents.

"The railroad freight rate from Elgin to Chicago," said Mr. Freese, "is 52 cents as against our 60 cents, but we pick up and deliver the goods, which saves cartage at both ends and makes our rate actually much lower, besides the time saved by our delivery system."

Among the articles in the first class are bakery goods, boilers and tanks, candy, cereals of all kinds, clothing not boxed, motorcycles crated, musical instruments, poultry alive in crates, tires (auto and motorcycle), typewriters, etc.

Chicago, Waukegan & Hammond Line in Action

Another new inter-urban motor-express line entering the local fast freight service is the Chicago, Waukegan and Hammond Transportation Co.

Broadly speaking, this company's trucks serve the territory of the lake shore, both north and south from Chicago, as far north as Waukegan, Ill., and as far south as Hammond, Ind. It cooperates with local express lines, such as the East Chicago Express Co. and Linn's Express, plying between Evanston and Chicago. The company has been operating since Monday, August 26.

The new Chicago, Waukegan and Hammond line has as its president William L. O'Connell, former chairman of the State Public Utilities Commission, who was the chief adviser of Judge Dunne all through his recent administration as Illinois Governor. Mr. McConnell has also held the important positions of City Treasurer and Commissioner of Public Works, of the City of Chicago. He has the confidence of the business men, who know he can and will make a success of the new express company work.

With Mr. O'Connell are associated H. J. Manley, Traffic Manager, and D. J. O'Conner, Secretary and Treasurer. Mr. W. L. Lederer is in charge of the downtown office. The company has a very favorable place for its Chicago office and loading station—the old Erie Railroad dock and freight-house fronting on Market St. near Randolph, and opening its rear doors to the Chicago River. It has a good dock, and freight from the lake boats may be unloaded directly into the building, or upon the trucks themselves, for further transfer.

The new company is seeking, and successfully, too, a practice of co-operation with the local express companies already established, using their service to expedite distribution, and in turn securing the long haul work. These local companies are usually equipped with small trucks, or, in some cases, still with horse-drawn express wagons, which can easily distribute the goods when delivered at the town where the local company operates. The increased business furnished by the through motor-express lines which formerly was handled by the railroads more than equalizes any loss in cartage from Chicago to the suburban town.

"At first, the local express company felt that its territory was being invaded," said Mr. O'Connell, "but now, when they see we are giving them business, they are throwing to us much of their long-haul work." Mr. O'Connell also pointed out that his company was tapping territory which the railroads did not formerly reach. He explained the hopes and purposes of the new company as being collateral with that of the Government's aims. "We are going to do our very best," he said, "to help reduce the cost of living, by supplying some of the much needed transportation, of which the country is now short. At the present prices vegetables, fruit, garden truck and other country products are so high that many cannot afford to buy them, but a man with an automobile can actually run out a little ways into the country and see this food actually going to waste, for want of means to deliver it to the people."

Besides carrying capacity loads on practically every trip, it is also interesting to note the variety of goods carried. One of the loads which the writer observed consisted of 43 crates of bread, which the shipping clerk of the Schultz Bakery stated contained an average of 110 loaves per crate; some fifty odd kegs of nails, weighing 100 lb. each; one crate of dry goods from Marshall Field's, and some half dozen small packages of one kind and another, all packed upon one of the big semi-trailers, which the tractor pulled away from the Market St. freight house consigned to Waukegan.

"That other guy can take the rest," shouted Driver Briggs as he threw in the clutch, which, translated into plainer English, meant that there was too much merchandise deposited on the Market St. shipping floor of the Chicago-Waukegan line for one big semi-trailer to carry. Driver Briggs said he had on something between six and seven tons of merchandise.

One of the smaller trucks, of the kind before which the officers of the company are standing in the picture, followed the big "tractor-trailer" with the overflow, and this company had only been in operation five days. Certainly Uncle Sam knew his needs when he sent out the call for transportation help.

An Extensive Advertising Program is Not the First Consideration in the Trucking Business. The Chicago, Waukegan & Hammond Transportation Company Has Listed Its Delivery Points on Either Side of the Entrance.

Motor Express and Trolly Line Join Hands

The Inter-Urban Motor Despatch is the name of the latest arrival on the freight battle mid-west front at Chicago.

The Inter-Urban Line operates a flock of trucks between its shipping station, 134 North Market St., Chicago, to the suburb of Evanston, 12 miles north of the Chicago Court House. There it connects with the Chicago and North Shore Electric Railroad, which formerly had some small express service. This is a "trolley" line, which connects with the Northwestern Elevated Railroad Co.'s passenger traffic at Evanston, passengers coming to Chicago from the north over the elevated line after leaving the surface "trolley."

This Chicago and North Shore Electric is the line which runs from Evanston, Ill., to Milwaukee, Wis., so that by this new freight traffic service of the Inter-Urban Motor Despatch a through freight line by motor and trolley, virtually a motor-express service has been established between Chicago and Milwaukee.

This is a most important territory for aid to the government, aside from its direct relief of the railroads, as on this line is Fort Sheridan and Great Lakes Naval Training Station.

The Council of National Defense Will Aid the New Lines

The Highways Transport Committee of the Council of National Defense will assist the new motor-express lines in every manner within its power. The Illinois committee has already established a "Return Loads Bureau" with headquarters at the Chicago building of the State Council of Defense. Best of all, Chicago has put her own business shoulder to the freight car wheel, and already it has begun to move.

Many Motor Trucks Engaged in Hauling Coal Direct From Mine to Consumer

So-Called "Wagon Mines" Depend on Motor Trucks for Handling Their Output in Large Quantities These Days. One Mine, Near Pittsburgh, Handles Nearly Two Hundred Tons Daily in This Way

By A. V. COMINGS

THOUSANDS of tons of coal are being hauled daily direct from mine to consumer by motor trucks in the coal mining fields of Pennsylvania, Ohio, Indiana and Kentucky. The old-time "wagon mines," so named because they were located away from rail connection and depended on wagons for hauling their products to the nearest railroad, are now more properly "motor truck mines," for in almost every instance the slow, horse-drawn wagons have given way to motor truck haulage. These mines range in size from mere holes in the ground, producing a few tons of coal per day, to big, modern mines, whose production runs up into the hundreds of tons every twenty-four hours.

The Pittsburgh district furnishes some striking illustrations of motor truck haulage direct from mine to consumer. The Brown Bros. mine, located near Cooley, on the Charleroi car line, is typical of the smaller "wagon mines" all over the country. It is a shaft cut on an easy grade directly into the top of the ground, and one mule patiently hauls out, in small mine cars, all the coal that is taken from the shaft. The car is hauled out onto an elevated trestle, and from there is dumped directly into the waiting motor truck beneath. This mine keeps three motor trucks going, a 3½-ton G.M.C., a 3½-ton Little Giant and a 2-ton Lange. These trucks make deliveries direct to consumers within a radius of ten miles and are kept going just as fast as the coal can be gotten out of the earth. Each truck is fitted with automatic dump body, so that from the time the coal is first mined there is no wasted labor in rehandling the coal to the consumer.

Across the valley and within two miles of this little mine is one of the largest "wagon mines" in the entire coal field, the property of the Fairhaven Coal Co. This company's shaft is sunk in the side of a hill about 100 ft. above the Pittsburgh-Uniontown road, and the pit cars when they emerge from the shaft are dumped into pockets on the side of the hill over the road, from which gravity empties them into motor trucks below. The capacity of the mine is 325 tons per day, and will soon be 400 tons per day. Fully 90 per cent. of this output is handled from the mine by motor trucks, the remainder being hauled short distances by horses.

Trucks Kept in Good Order by Mechanic at Mine

The Fairhaven company has five trucks of its own in service, all with automatic dump bodies. These trucks are two 5-ton Packards, a 3½-ton Armleder and two 3½-ton Acmes. A garage in charge of a skilled mechanic is located at the shaft, so that the trucks are kept in good running order at all times. Other retail coal companies send their trucks to the mine for their purchases, so that there is practically never coal in storage at the mine, each day's output being taken away immediately.

The trucks make an average of 15 to 18 miles on each round trip, making eight and nine round trips a day. While the road they follow is all paved, the trucks have to climb a steep grade for over a mile and a half shortly after they leave the mine, a grade that would kill horses, but that the trucks negotiate without a particle of difficulty.

Before a recent order of the fuel administration went into effect, the Fairhaven company charged a straight tariff of $3 per hour for the big trucks in coal deliveries, and $2.50 per hour on the smaller units. It was found that this charge just about paid the expenses of the trucks, with their drivers at 55 cents to 65 cents per hour, depreciation, insurance, maintenance, etc.

On August 1st the Fuel Administration put into effect an order allowing the company to charge $3 per ton for coal at the mine to the small consumer, $2.75 to schools and public institutions, and $2.45 to large consumers. For delivery the companies were ordered to charge, per ton, as follows:

First mile	$0.70
One to two miles	.80
Three to four miles	1.17
Four to five miles	1.30
Five to six miles	1.50
Six to seven miles	1.85
Seven to eight miles	2.15

Any distance over eight miles the companies were ordered to charge a special rate subject to approval by the administrator.

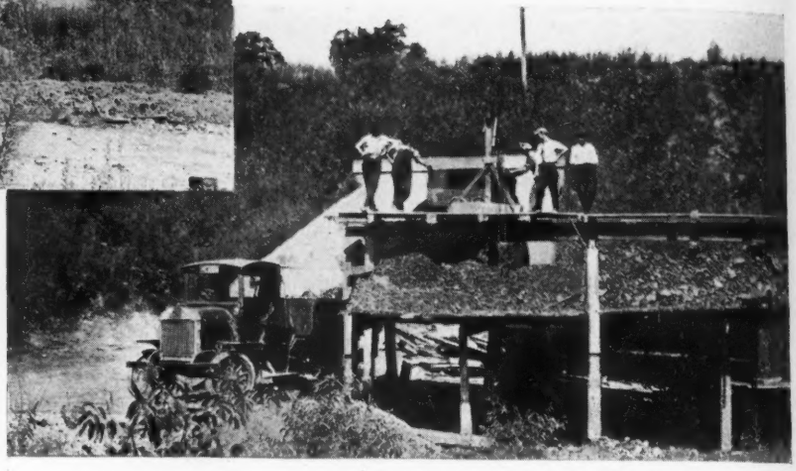
It is stated that these charges will just about allow the companies to break even on their truck haulage, making their profit on the coal price.

The problems of some of the wagon mines differ slightly from mere hauling from mine to consumer. The Home Coal Co., for instance, at Monongahela, gathering coal from several wagon mines in the district by motor truck and dumping the loads on a storage platform, from whence it is loaded by gravity into cars for shipment long distances. The motor trucks are giving excellent service in this work.

In another place in this same vicinity, one of the mines dumps coal into motor

Huge Pockets at the Fairhaven Mine, Near Pittsburgh, Deliver Coal Direct From Mine Car to Motor Truck; One Reason Motor Trucks Will Always be in Demand for Coal Mining. All One Has to do to Start a New Mine is to Scratch the Surface, Anywhere Near Pittsburgh

The Mine Cars Are Dumped Directly Into the Motor Trucks Without an Intermediate Handling



When no Trucks Are Available the Coal is Dumped on a Platform Below the Trestle, Whence It May be Shoved Off Into Trucks When They Come

trucks from the opening of the shaft, and the trucks then carry the coal some distance to a dumping platform, from which they discharge their loads into pit wagons, or mine cars. These mine cars are then hauled over their tracks to a dumping platform at the nearest railroad, and the coal is dumped into railroad cars for shipment.

During the car and coal shortage last winter motor trucks were used in many different ways to supplement rail haulage, several of the largest mines in the Pittsburgh district maintaining loading arrangements for trucks in addition to their railway car loading facilities.

It is not at all unlikely that the coming winter will see even greater use of motor trucks in handling coal direct from mine to consumer, as their economy and dependability become better known to operators of big coal mines.

Trucks to Have Gasoline First

In case of any need of governmental restrictions on the use of gasoline, motor trucks are to receive first consideration, according to a recent bulletin from Washington. There has been sufficient gasoline up to the present to meet all needs, but in case that there should be a need of rationing, freighting vehicles will receive an adequate supply of fuel. Plans are being considered by the oil division of the Fuel Administration in co-operation with the automobile industry and the petroleum war service committee to determine the most effective method of gasoline conservation.

Indiana Truck Corp., Marion, Ind., is erecting a fire-proof building, 70 by 200 ft. The company has recently received large government orders, which have necessitated additional manufacturing quarters.

Wanted: Patriotic Mechanics and Drivers

The Allied Nations, Depending on the International Red Cross, Seek, Through the American Red Cross, to Enlist an Army of Mechanical Experts and Drivers

MEN Wanted — 1800 patriotic men; men familiar with the mechanism of the automobile for immediate overseas duty after four weeks' training is completed." This is one of the urgent calls of the present hour, and it appeals to the capable, willing men in our shops, garages and service stations. The American Red Cross has established what is termed the Automotive and Mechanical Bureau with general headquarters in Chicago, which headquarters are also those of the National Bureau. It is here that all recruiting and enlistments in relation to this special service of the United States are done under the supervision of the General and military officers detailed for this duty. This is a new department which has been created and it is under the direction of Major H. P. Harding, a former military officer, and an automotive and mechanical engineer of international reputation. He has been connected with some of the largest automotive enterprises in this country and is a member of the Society of Automotive Engineers, who were factors in the automotive department of the United States Government.

The barracks has been established in the city of Chicago, and is known as Camp Scott. It is located on the Midway, 62nd St. and Cottage Ave., and is already thoroughly equipped to maintain and care for all men enlisted.

Three to five weeks will be devoted in the barracks to mechanical and military training. Immediate overseas duty will follow this course of training. The men in this service will receive $40 a month together with all equipment, clothing, shoes, etc., and will receive sustenance when entering the service. While they are undergoing the course of instruction they will receive one-half pay, or $20 per month during such time, as well as maintenance. Added to this is a paid-up life insurance policy for the sum of $1000, which will be handed each man on embarkation for service.

Every precaution is taken for the care and comfort of the men, and the service affords a most splendid opportunity for advancement. All men are qualified for this service except those in Class 1, of the Selective Bureau, or what is termed the "Draft," and men over and under the draft age are eligible, and will be accepted if they are capable. They must, however, know how to drive a car and make minor repairs.

The course of instruction comprehends, in addition to the automotive and mechanical, that there will be training in loading, placing and roping of packages, barrels and materials on truck

bodies to insure proper delivery without loss, and technical instruction in handling and driving of automobiles, ambulances, camionettes and trucks, together with ignition, carburetion, and the entire theory of gas engine operation and instruction. Many automobile dealers, and dealers in automobile parts are installing at the barracks their different machines and appliances in order that the men may thoroughly familiarize themselves with each part of motor construction, and the services of these manufacturers are being donated to this great and praiseworthy cause.

The profitable experience that these men who enlist will have derived after completing this course will be invaluable, as they will be experts along automotive and mechanical lines.

The military instruction will contemplate military discipline and courtesy, knowledge of military formations, organizations and officers' insignia, fundamental knowledge of the details of squad platoon, company and army formations, and a general military knowledge. Such men as prove themselves eligible, may be appointed non-commissioned officers. These men will be given thorough training in setting-up exercises and so-called military foot tactic work, the aim being not only to perfect men along lines of mental, but also the physical structure. The minimum service is for the period of one year and the maximum service is for the duration of the war.

An interesting feature of this Automotive and Mechanical Section, which is the first of its kind in the history of the world, is the Nation's recognition of the automotive industries.

The Allied Nations, depending on the International Red Cross, seeks, through the American Red Cross, to enlist an army of automotive and mechanical experts, and has asked that 1800 men be secured.

The barracks, known as Camp Scott, is said to be one of the finest specimens of architectural beauty extant. It is a brick and stone structure fronting on the Midway at its juncture with Washington Park. It is officially known as Camp Scott, Automotive and Mechanical Section, American Red Cross.

It is the intention, through these headquarters, to furnish men for all overseas duty, the world over, wherever humanity demands them, whether it be upon the fields of France, the plains of Russia, the mountains of Italy or on the shores of Greece. Wherever the call of the Nation may demand, the American Red Cross is ever ready to respond to its fullest extent.

The recruiting headquarters are located at No. 528 Peoples Gas Building, Chicago, Ill.

Winther Motor Truck Co., Winthrop Harbor, Ill., in addition to the new $125,000 plant now under construction, is erecting a one-story building, which will be used for offices and drafting rooms. Its dimensions are 50 by 70 ft.

Relieving New York Freight Congestion

By W. W. PACE, Director of Advertising, Mercury Manufacturing Company, Chicago

TO THE casual observer of the New York water front, the most noticeable of all the many interesting things that present themselves is the terrific congestion all along the front of the unloading platforms of the piers, and seeing this, one cannot but feel that this enormous wastage in time and money is almost criminal under existing conditions when every minute should be made to count.

The terrific tangle of motor and horse-drawn trucks is, one might say, staggering, and it appears impossible that it can ever be straightened out. In fact, if we were to stand there from early morning until late evening we would see some of the trucks which have been standing all day, drive away with their loads intact. These trucks and their drivers have wasted the entire day and must come back the next day to try it over again.

But as we walk down the long line of piers we are suddenly attracted by the lack of congestion in front of the piers of the Pennsylvania Railroad Company, Piers 4 and 5, and watching we see trucks drive up to these piers, unload quickly and drive away, and noting this unusual condition we wonder if this absence of congestion is occasioned by lack of business or by some super-efficient method of handling the freight.

Further investigation will take us into the freight house where we will find the loading platforms clear and not, as are their neighbors, piled high with freight of various kinds and shapes. We find that every bit of material is on trailers, classified and arranged in such a way as to be instantly accessible, and running in and out through the orderly aisles we see small electric industrial tractors which on investigation we find are called "Trackless Trains." These tractors, we are informed, are the reason for the lack of congestion; the reason why there are no teams or trucks filling the street in front of this pier and the reason why the Pennsylvania Railroad Company, at its piers 4 and 5, is now handling more freight than it ever handled, prior to the installation of "The Trackless Train."

Following the operation, we see the truck, with its load, back up to the unloading platform and we expect to see the driver throw his freight off onto the platform; instead of that, however, he unloads it directly onto trailers which stand ready to receive it, thus saving the double handling which occurs on practically every other pier and dock in New York.

If the freight delivered by the truck is part of a carload shipment, the trailer on which it is unloaded is immediately hooked onto the "freight engine" tractor, pulled to the scale, and then down the gangplank from the ramp and deposited in the "yard" nearest the gangplank which leads to the float which contains the car where it is to be loaded for shipment.

After following this switch engine through this operation we follow it, with the empty trailers it has picked up, back to the unloading platform where we find that a less-than-car-load shipment has been delivered. As each piece of freight in this shipment has a different destination each one must be handled separately, so each one is carried on a hand truck to the scales and from there it is carried to the edge of a ramp, which is just as high as the platforms of the trailers which are backed up against it, and there placed on the properly classified trailer which will carry it and all other material intended for a certain routing. And so the operation goes on with never a hitch and without congestion or interference.

The trailers which are backed against the ramps are all for LCL shipments and just as quickly as one of these trailers is loaded the switch engine tractor hooks onto it and pulls it over to the "yard" where it will be made into a train with others and pulled over the gangplank to the float where it will be dropped at the car for which it is intended. All the hauling over the gangplank to the float is handled by the freight engine tractor, which does nothing else, while the switch engine tractor works only from the unloading platform and ramp to the yards.

As we see the loaded trucks back up to the unloading platform, unload the freight onto the trailers; see the trailers moved away immediately; notice the lack of confusion and congestion, we wonder why it is that this method for handling freight is not used on every pier and dock in New York and our wonder is further increased when we question the foreman in charge, who is only too glad to tell us what changes "The Trackless Train" has brought about besides the relief from congestion.

Dependable Truck & Tractor Co., Galesburg, Ill., has completed its first factory building and is installing machinery. The company has purchased five acres of land just outside the city and is planning a new factory which will have a floor space 90 by 300 ft. It is expected that the building will be completed before winter. C. V. Morse is president and general manager of the company; H. C. Pfaff, vice-president and sales manager of production, and J. J. Welsh, secretary-treasurer.

Smith Engineering Works, Milwaukee, Wis., is erecting a two-story machine shop and office building. The structure will be 67 by 100 ft. and will be built at a cost of $32,500. This company makes machine tools, etc.

Some Well-Known Models of Industrial Electric Tractors, and Load-Carrying Trucks

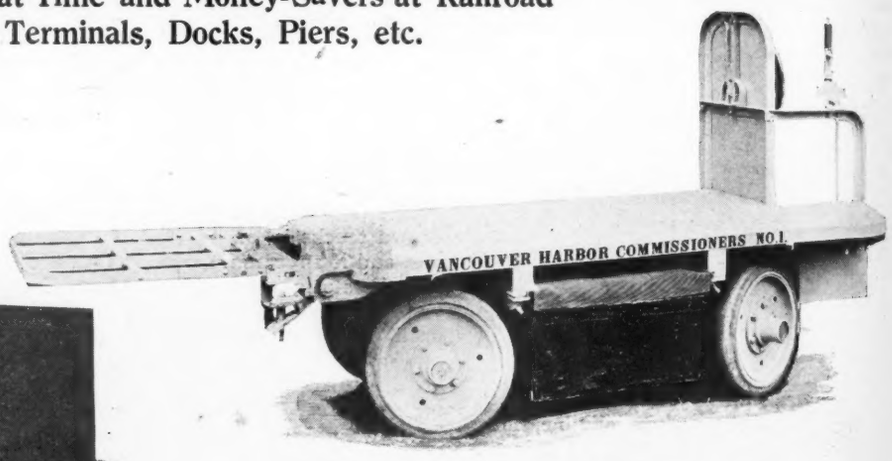
Industrial Electric Trucks Are Now Being Built in Many Sizes and Types to Meet Practically Any Warehouse or Dock Conditions. These Machines Are Great Time and Money-Savers at Railroad Terminals, Docks, Piers, etc.

The Lansing Models C and D Electric Tractors

Manufactured by the Lansing Company, Lansing, Mich.

In appearance these models are almost identical. The difference is in their rated capacity; Model C is rated at 4000-5000 lb., and Model D, 10,000-12,000 lb. The specifications for Model C are as follows: Cleveland worm drive; ratio, 10:1; iron clad Exide batteries, 24 cells, M. V. 11; Westinghouse motor, V-62, 48 volt, 33 amp., 1550 r.p.m.; Westinghouse controller, 519-A series parallel, 4 speeds each way; Sangamo ammeter; drive wheels 18 x 4 in., front wheels 18 x 3 in.; bearings, New Departure, ball and Timken roller. Speed empty, 7-8 m.p.h.; speed loaded, 4-5 m.p.h. Weight with battery, 2500 lb.; turning radius, 27 in.; hand wheel or lever steer.

Model D is practically the same but built sturdier to take care of its extra capacity. The same standard equipment is used. Its speed loaded is 3½-4 m.p.h., while it will make 6½-7 m.p.h. empty. Its weight is 3000 lb., and it will turn in a radius of 30 in.



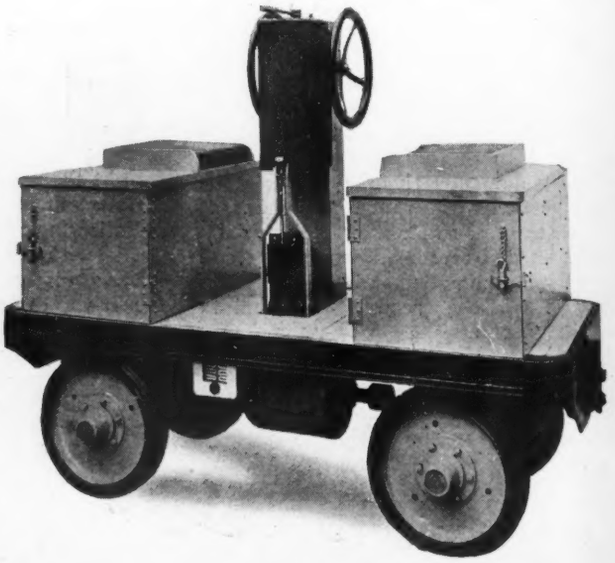
The Lakewood Industrial Truck

Built by the Lakewood Engineering Company, Cleveland, U. S. A.

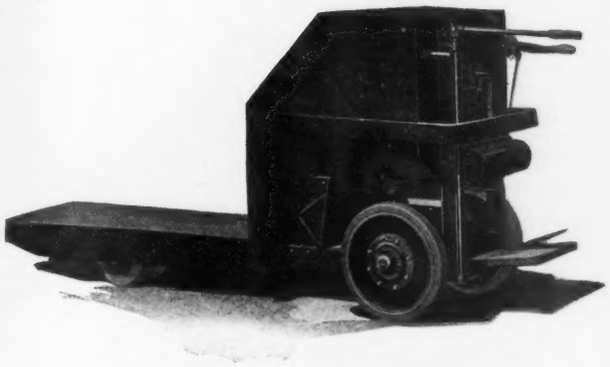
The specifications are practically the same for both the tractor and the truck, being interchangeable. One feature that the tractor has is the method of control and the seating of the operator; two seats are provided placed opposite from each other, with two steering systems. This allows the operator to face both ways by changing his seat and should eliminate much turning to get into position to haul. Practically standard equipment is used throughout on both tractor and truck: four wheel drive and steer, worm gear drive, with vertical shaft at each wheel; differentials made part of the worm gear; motor is of 50 volt, 45 ampere type with ample overload capacity, totally enclosed and protected; drum type controller with renewable fingers, four speeds in each direction; lead plate or Edison batteries; automatic control, in that safety switch cuts off current and brakes are set when operator releases foot pedal. Brakes are external contracting, with non-burning brake band lining mounted on main driveshaft; axles are of malleable iron, box section enclosing driveshafts; ball bearings; all driving mechanism is encased running in grease and oil; automobile type steering wheel, through worm gears to all four wheels; industrial type solid rubber tires, 20 in. in diameter and 3½ in. width. These trucks and tractors will make 4 m.p.h. loaded and 8 m.p.h. without load. This company also manufactures a line of industrial trailer trucks for use with their line.

Lansing Model H Electric Load-Carrier Truck

Model "H" Electric Load Carrier Truck has a rated capacity with trailer load of 5000 lb. It has a speed empty of 8 m.p.h., and loaded, 3 to 5 m.p.h. Length is 9 ft. 4 in. overall; width, 3 ft. 6 in. It will turn in a radius of 2 ft. 9 in., and steers either by wheel or lever as wanted. Standard equipment includes Cleveland worm drive; Exide "Ironclad" battery 24 cells, M. V. 9 and Edison 42 cells, A-4; Westinghouse motor V-62, 48-volt, 33 amp., 1550 r.p.m.; Westinghouse 519-A controller, series parallel, four speeds forward and reverse; Sangamo ammeter; B. F. Goodrich tires; New Departure, ball and Timken roller bearings.

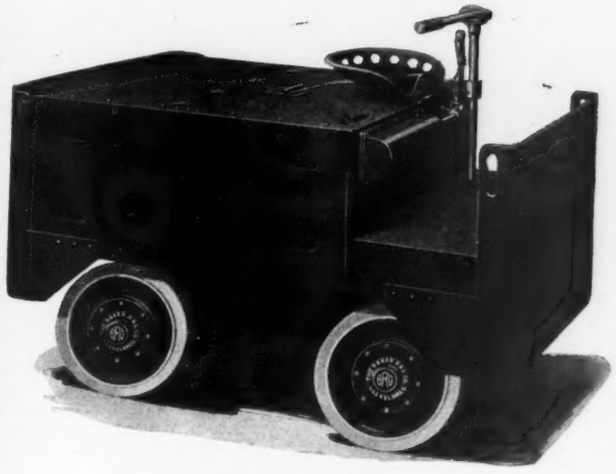


The Lakewood Tractor



Baker R. & L. Electric Lift Truck

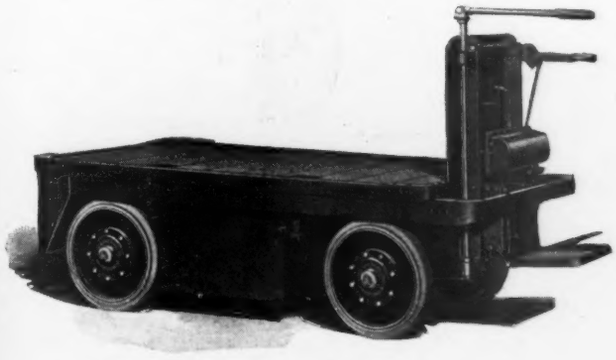
The electric lift truck carries 4000 lb. also, is a four wheel steer, and two wheel drive, overall width 41½ in., operates in intersecting aisles 72 in. wide. Maximum speed, light, 7 m.p.h.; loaded, 5½ m.p.h. Lift platform height, 11 to 16 in., as elevated by auxiliary motor. Low fixed platform 17 in. high. This makes this truck more valuable to the man who must convey heavy articles from one point in his factory or warehouse to another, as its lowered lifting platform makes it easy to load the truck.



Baker R. & L. Tractor

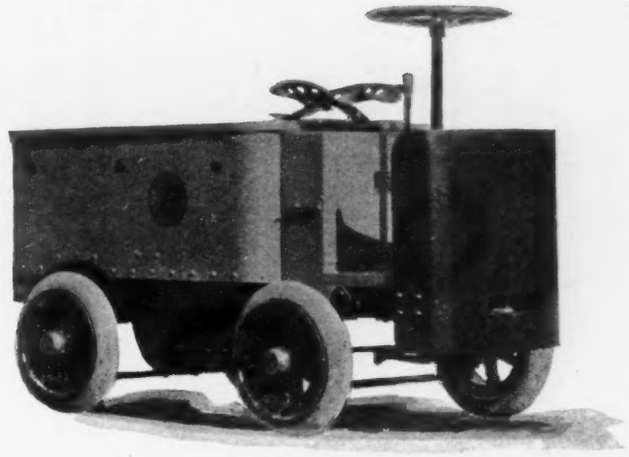
Built by Baker R. & L. Company, Cleveland, Ohio

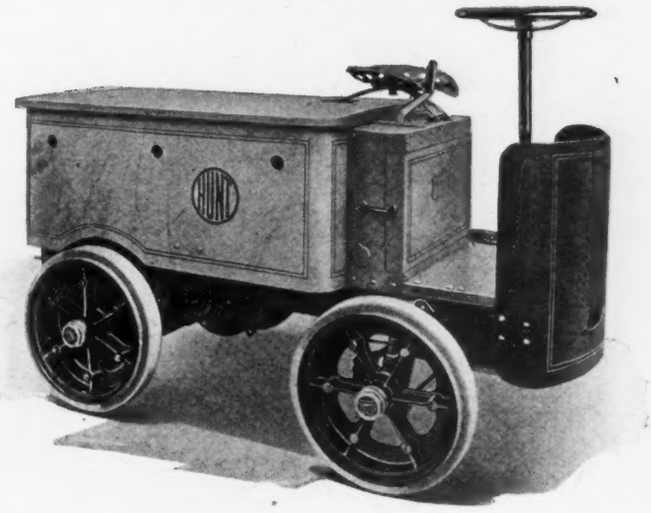
The tractor weighs 4000 lb. Two and four drive. Four wheel steer; starting draw bar pull of from 1500 to 3000 lb. Its normal trailer load is from 1 to 10 tons. Speed empty, 3 to 7 m.p.h., and with load, 2 to 5 m.p.h. Operates with trailer in an aisle 58 in. wide. Width overall 42 in. This is not a modified industrial truck built to carry loads, but it is a specially designed tractor for tractor purposes only, and is driven by a single enclosed 48-volt motor designed for hard work. The increased capacity of such a high voltage motor is readily understood by anyone conversant with electrical machinery.



Baker R. & L. Utility Truck

The truck is a full sized machine with space provided for oversized batteries and facilities for rapid change of batteries. The loading space is ample, yet the turning radius and flexibility permits rapid handling even in congested quarters. This truck carries 4000 lb., is made either in two or four wheel drive, overall width 48 in. Platform height 24 in. Operates in intersecting aisles 66 in. wide; maximum speed, light, 7 m.p.h.; loader, 5½ m.p.h.

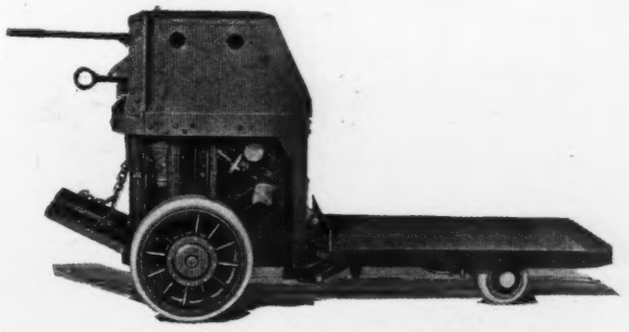




Hunt Type J Tractor

Built by C. W. Hunt Company, Inc., West New Brighton, N. Y.

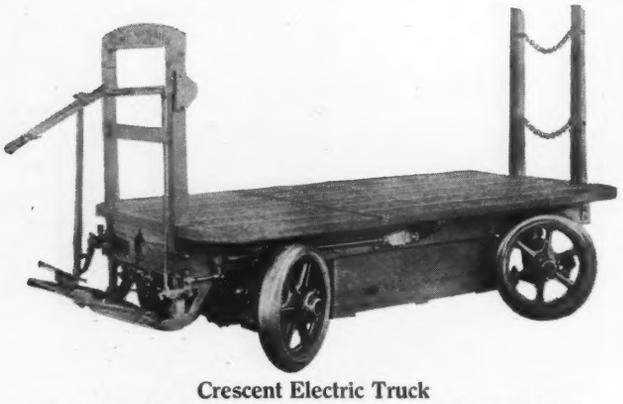
Length is 6 ft. 8 in. overall, width 4 ft. overall; it will turn in a radius of 7 ft.; the drive is of the spur gear type, double reduction 12 to 1 ratio, M. & S. positive drive differential and has a maximum drawbar pull of 1800 lb.; drawbar pull at rated load on level ground is 500 to 600 lb.; rated capacity of trailer load 20,000 lb. Its average speed empty is 7½ m.p.h. and it will make 4 to 5 m.p.h. loaded. Its weight with Edison cell is 3400 lb., and with Ironclad Exide cells 3700 lb. The controller is G. E. heavy drum type, three speeds forward and three reverse. Wheel type steering system, with driver's seat located on top of casing, and controller handle on right side within easy reach.



Elwell-Parker Type EG Truck

Built by Elwell-Parker Electric Company, Cleveland, Ohio

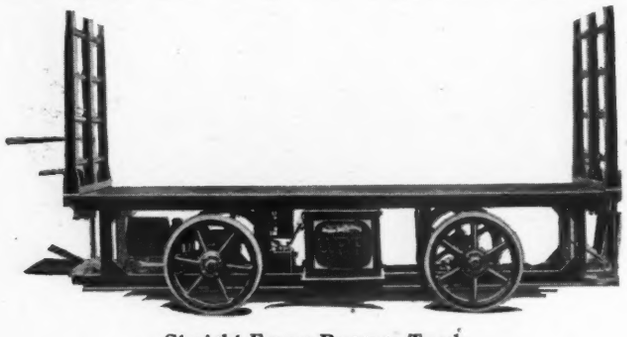
Four-wheel steer with adjustable horizontal lever; two wheel drive. Vertical propelling motor direct connected to worm on full floating axle. Independently foot operated, external contracting brake between four pinion differential splined to receive drive shafts carrying universal inside and clutch plates bolted to outside of wheels. Horizontal elevating motor with special brake direct connected to steel worm. Bronze worm gear provided with internal clutch nut through which operates long multi-thread screw attached to platform. Platform on bushed rockers. Battery in on removable box in steel compartment with removable cover over drive axle. Capacity 4000 lb. Speed 4 to 7½ m.p.h. Equipped with Edison or Lead battery. Elwell-Parker heavy duty motor; drum type enclosed controller, and pressed on type rubber tires.



Crescent Electric Truck

Manufactured by the Crescent Truck Company, Elizabeth, N. J.

Capacity, 4000 lb.; speed loaded 5 to 7 m.p.h.; speed empty, to 10 m.p.h.; length, 9 ft. 3 in.; turning radius, 6 ft. to center line of truck; tread, 36 in.; batteries, iron clad Exide, 21 cells, M. V. 11, 156 ampere capacity. Edison 36 cells, A-4, 150 ampere hour capacity; motor, 36 volts, 35 amperes, 1000 r.p.m., will stand 200 per cent overload for ten minutes without serious overheating; controller, drum type, three speeds forward and reverse, completely enclosed in sheet-metal box; brake, internal expanding, lined with asbestos; four-wheel steer, steering knuckle pivots mounted on S. K. F. bearings; transmission, spur and worm drive, M. & S. differential completely enclosed, running in oil, driving through universal joints to the wheels; frame, 4-in. channel steel.



Straight-Frame Baggage Truck

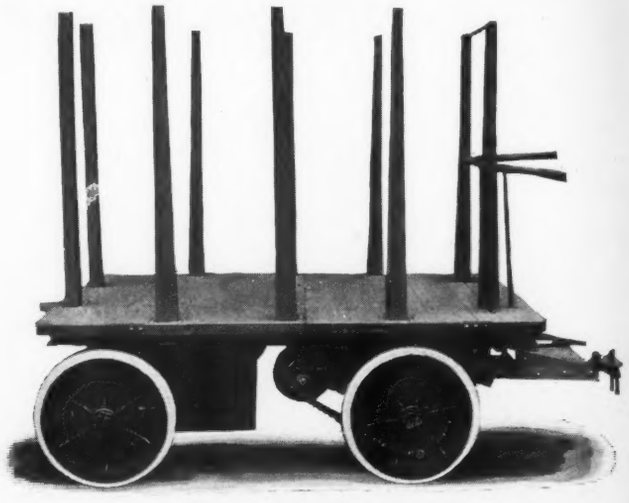
Built by the Automatic Transportation Company, Buffalo, N. Y.

The specifications for this truck are as follows: Four wheel steer with double end control, a very heavy drum type controller with three speeds forward and three reverse, worm driven, and using the newest model Timken-David Brown worm and full floating axle. All power transmitting parts are mounted in a steel housing and are protected from deteriorating effects of dust and dirt. The brake is operated by a foot pedal and has external contracting double action. The motor is two-three horsepower, General Electric, specially designed for this service. These trucks have a capacity of four thousand pounds and a speed of from 5 to 6 m.p.h. The equipment provides 27-in. rubber tired wheels.

End-Control Industrial Tractor

Manufactured by the Industrial Truck Company, Holyoke, Mass.

This company produces two types of industrial tractors, one having end control and the other center control. In the second type, which is not shown, the operator sits in the middle of the tractor, and by changing seats can operate in either direction without having to turn the tractor around. This should be a very good feature in narrow and congested aisle conditions. The tractor shown is of the end control type, steers on all four wheels and is built in a four or two wheel drive. The two wheel drive machine can be converted into a four wheel drive by adding the necessary worm and wheel housings, differential and a few other parts. The frame of this tractor is built of commercial rolled, channel section steel; the bumper plates are boiler plate bent and riveted to the frame. The coupler castings are of the three step type to accommodate different heights of trailers. The battery boxes are removable by side doors, and hinged top plates afford easy access for flushing and inspection.



Type A. C. Electromobile

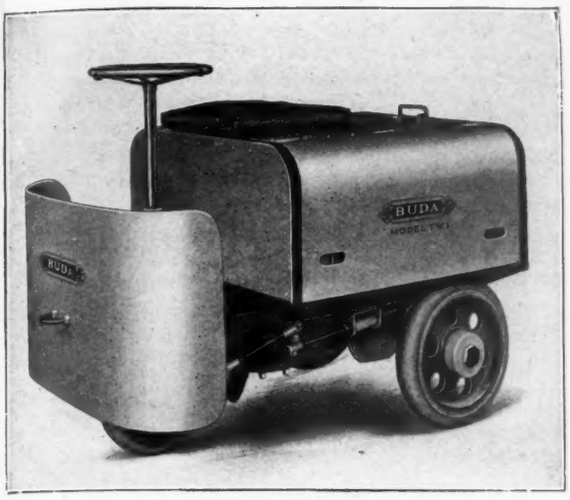
Built by the Orenstein-Arthur Koppel Company, Koppel, Penna.

The carrying capacity of this truck is 3000 lb. and it will pull 10,000; approximate weight, 1775 lb.; length is 7 ft. overall, and width, 41 in. overall. Its maximum speed is 5 m.p.h. and it will negotiate 30 per cent grades. Can be used for either inside or outside work. The battery is placed under the platform, with the controller entirely enclosed and easily accessible. Chain driven power supplied to rear wheel. The brake is fixed and the truck cannot be started until the operator stands upon a foot pedal which releases it, and closes a switch contact in the controller, allowing current to connect with motor; an emergency brake is furnished on each wheel if desired.

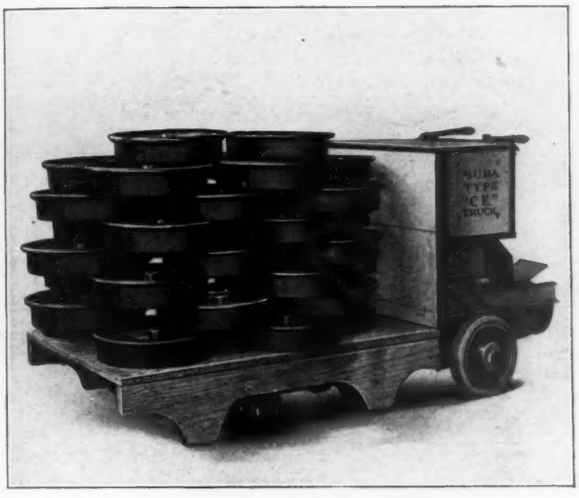
Type L3 Mercury Tractor

Built by the Mercury Manufacturing Company, 4118 Halstead Street, Chicago

Electric type, motor geared direct to rear axle. Length overall, 69 in.; width overall, 39 in.; turning radius, 56 in., outside of frame. Steering is controlled by lever handle attached to front wheel. Drum type controller, three speeds forward and three reverse, controller located at the right of operator's seat in easy reach; brake is operated by foot pedal and contracts upon a drum mounted on the worm shaft. The brake is automatically set whenever driver is off the seat. A single stroke bell furnishes the warning signal, and is operated by a floor push. Maximum speed without trailer, 7½ m.p.h. Weight of this tractor is 1310 lb.



Buda Type TW Tractor



Buda Type CE Elevating Truck

Built by the Buda Company, Chicago, Ill.

Type A is a factory or warehouse truck for carrying loads upon its deck. The batteries are suspended below the deck to provide a maximum of loading space. This truck will also haul loaded trailers in addition to its own load. The rated carrying capacity is 4000 lb.; loading platform measures 3 ft. 7 in. by 6 ft. 10 in. and is provided with side stakes and end gate; power unit consists of an electric motor, fully enclosed, vehicle type, operated from storage batteries; controller is a Cutler-Hammer reversible drum type, hand operated and fitted with automatic device which returns it to neutral position when operator's hand is taken from it. The drive is Timken-David Brown worm and worm gear used in connection with a full floating rear axle; bearings are S. K. F. ball and thrust and Timken roller. It has three forward and reverse speeds, ranging from 1 to 7 m.p.h., and operates in either direction. Steering mechanism is the vertical type. The operator's platform is divided; one-half is stationary and one-half is directly connected to the brake, so that the lifting of the operator's foot applies the brake. This insures the brake always being applied except when intentionally released by the operator. The tires are 3½ in. by 16 in., tapered section, solid rubber, pressed-on-type.

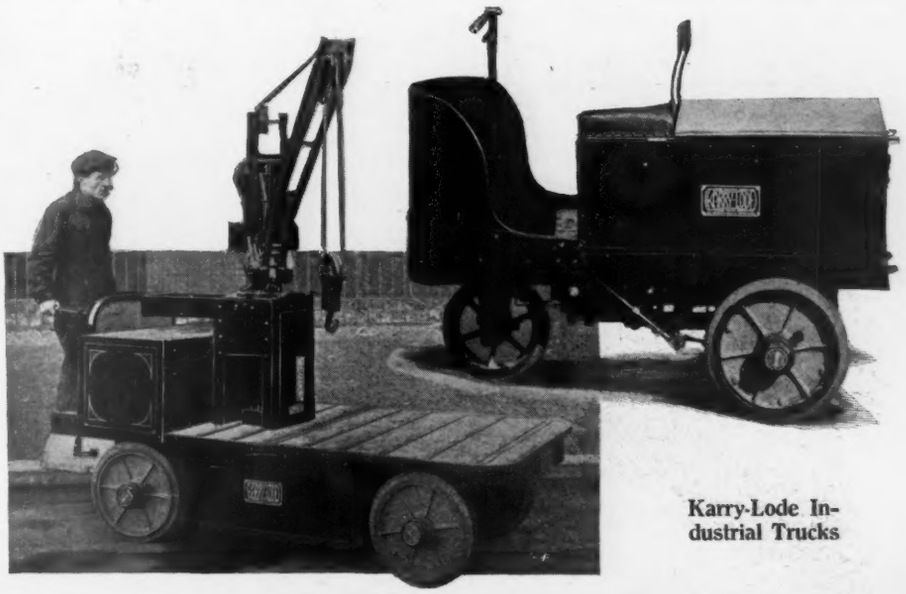
The Ross Electric Lumber Carrier

Built by the Covel Manufacturing Company, Benton Harbor, Mich.

Designed for use in lumber yards only, and it is claimed will effect a seventy per cent saving over old methods of lumber handling. It runs over the load and picks it up by merely lifting two simple bolsters upon which the load is built. It is operated by one man who sits over the load. It will carry from two to three thousand feet of lumber per trip. The motor is rated at 6 hp., but it is claimed will develop under strain up to 15. The average speed is 8 m.p.h. with load, and 10 m.p.h. without load. It is claimed that this machine is remarkably easy to handle. The weight of the machine is 8250 lb.

Karry-Lode Industrial Trucks and Tractors

In the design of the Karry-Lode industrial truck, produced by the Karry-Lode Industrial Truck Co., Inc., 98 Nott Ave., Long Island City, N. Y., particular attention has been given to simplicity, strength and accessibility. Each particular feature of Karry-Lode construction is said to have been adopted only after practical experiments have proven the merit of such construction. The several Karry-Lode models follow the same general design with such structural changes as are necessary to meet the requirements of the various models. A 3½-hp. motor, specially designed for this truck is the power plant and is in unit with the entire electrical system. It is designed for ample overload capacity. The frame is a 4-in. channel beam, securely braced by cross-members and corner plates, yet it has a certain degree of flexibility, which is essential for minimum wear of moving parts. Every cell of the Karry-Lode battery is instantly accessible. The battery is placed below the loading platform, out of sight, yet is easily accessible, and there is ample room for



Karry-Lode Industrial Trucks

additional batteries. The rear axle is of the internal gear type, and the load is carried on a 2¾-in. axle of Shelby seamless tubing. The driving shaft is of solid nickel steel, and wheels run on large size Hyatt roller bearings. The front axle is made of Shelby seamless tubing, specially designed. The knuckles are drop-forged, while the spindles are heat-treated. The wheels run on large Hyatt roller bearings. The steering connections are exceptionally large to stand for wear and tear, and all pins are bushed, making easy replacement. Rear wheels are designed to give maximum strength for minimum weight, and the internal gear drive on the rear wheels is completely enclosed.

Elwell-Parker Electric Industrial Tractor

To meet a certain demand for a tractor to fit in between the carrier truck and heavy duty tractor, a three-wheeled tractor has been designed by the Elwell Electric Co., Cleveland, Ohio, which is said to be giving excellent service in freight houses where mostly small packages are handled. This tractor is built for medium service, and being a three wheeler it is capable of turning in a much smaller radius than that of which a four wheeler would be capable.

A distinctive feature of this tractor is naturally the single front wheel. It is steered by a handwheel or a hinged right and left lever. When the wheel steer is used the control lever is located on the left of the column. When the lever steer is used a control lever is provided at the side of the operator's seat, as shown. The steering wheel is carried on roller bearings in a heavy steel fork, spring supported, turning on large ball bearings in the steering column base. The seat operates as a circuit breaker, which closes when the operator's weight presses the spring, but only when the controller is in the off position. This industrial tractor is equipped with an Elwell-Parker heavy-duty motor and an Edison or lead battery.

The tractor has solid wheels and solid rubber tires. The normal drawbar pull is 300 lb. and the maximum 850 lb. The speed with no load is 625 ft. per minute. Its length is 70 in. and its width 41 in. The outside turning radius is less than the length of the tractor.

Drive is through a single reduction worm, the worm being steel and the worm gear phosphor bronze. The motor is directly connected to the worm on a full floating axle, and there are three speeds in either direction. Braking is by a pedal fitted with a heel latch.

The battery may be removed through the top or side of the compartment as a unit. This enables quick exchange of batteries if required. The battery cradle is suspended on springs. The tractor frame is carried on a separate set of springs over the rear axle.

Horizontal Hydraulic Hoists for Motor Dump-Trucks

The complete hoisting mechanism of the horizontal hydraulic hoist produced by the Horizontal Hydraulic Hoist Co., Milwaukee, Wis., lies underneath the body, permitting the use of a body the front end of which will just clear the back of the cab when being tilted. The body may be at least 18 in. longer than when the vertical type of hoist is used, and utilizes the full loading space on the chassis.

The principle upon which the hoist operates is novel in that no wire ropes are used, the lifting arms acting directly against anti-friction rollers on the bottom of the body, and the leverages are such that the pressure in the hydraulic cylinder is uniform throughout the lifting operation. Hoisting strains are distributed for a distance of five ft. over the rear springs and axle, instead of being concentrated at one point on the frame.

The sides and tail gate of the "All-Purpose" body are removable and stake pockets are provided so that the body may be converted into a stake platform body for hauling package goods. The tail gate is hinged both top and bottom, and when lowered from the top, as shown in the photograph, gives 2 ft. additional length to the body.

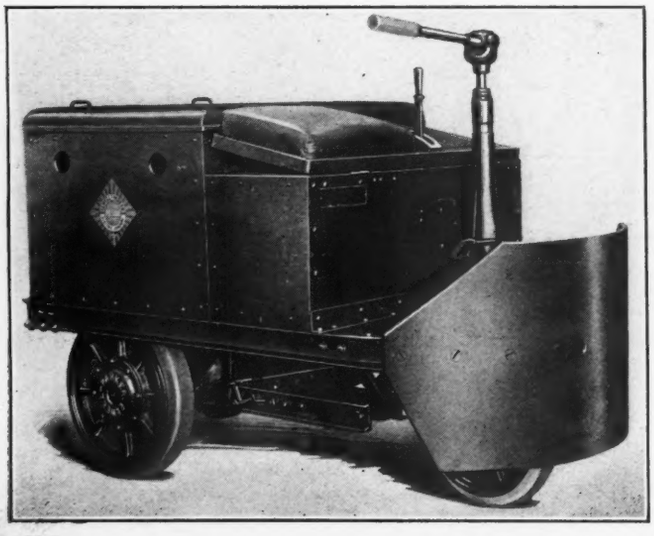
Massachusetts Saves Steel

Forty-two tons of steel will be saved by Massachusetts in issuing the 1919 number plates for motor vehicles, according to the Massachusetts Highway Commission.

Excepting that the plates are thinner than those for 1918, there will be but little change made. The commission has ordered half a million plates, or 250,000 pairs, and the difference in the thickness will give to other uses the 42 tons of steel which ordinarily went into the plates themselves.

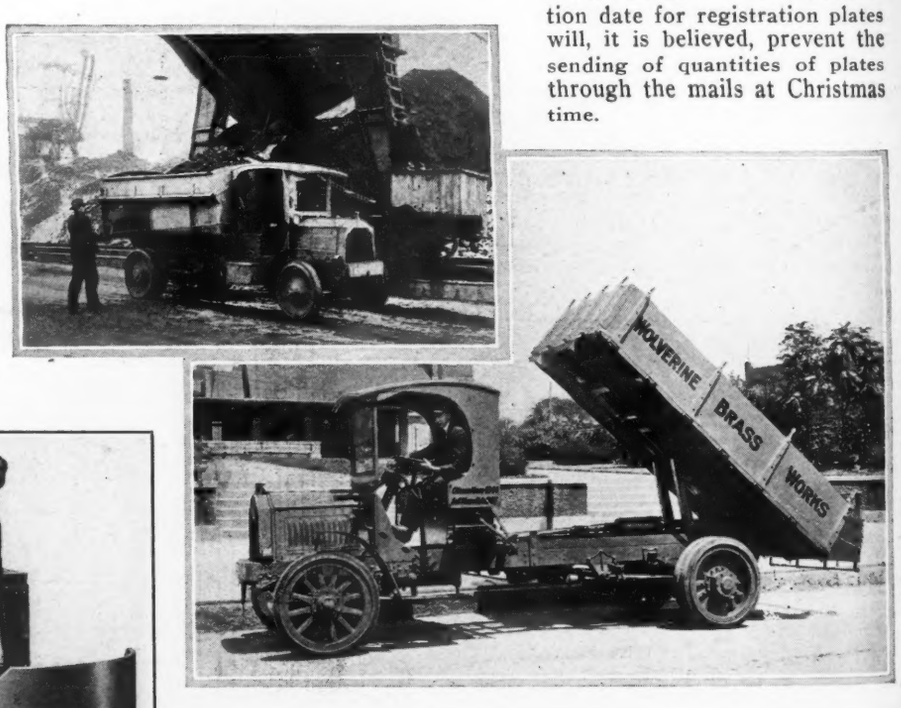
Massachusetts also started delivery of 1919 registration plates a month earlier than usual this year, or November 1 instead of December 1.

The advance in the distribution date for registration plates will, it is believed, prevent the sending of quantities of plates through the mails at Christmas time.



The Elwell-Parker Three-Wheeled Industrial Tractor

This tractor is built for medium service. The seat operates as a circuit breaker.



The All-Purpose Body is Illustrated With the Sides in Place

The other illustration is of a coal-hauling truck, equipped with a special type of Dreadnaught horizontal hydraulic hoist.

Hen Myers Appeals to the Drivers' Patriotism

Gas and Oil Conserving: Better Care of Car Resulting

By C. P. SHATTUCK

HEN MEYERS, distributor of the Invincible line of commercial cars in Tullawanda, reached for the last letter in the morning's mail. Attached to it was a newspaper clipping, the heading of which announced in big letters that "Gasless Sunday Saves 150,000 Barrels of Fuel." The letter was very brief, stating, "If your trucks were as economical in the use of fuel as your salesman claimed, perhaps there would be no need of curtailing the use of pleasure cars."

It required less than sixty seconds to ascertain from the records that Blank & Co. purchased a 2-ton Invincible two months ago and that Spooner made the sale. Taking down the receiver, the Invincible agent asked the switchboard girl for Mr. Spooner's time schedule for the morning. It should be explained that when possible each salesman filed a list of the places he could be reached by phone and the approximate times.

"Mr. Spooner will be back at 10 o'clock," replied the operator. "Shall I locate him?"

"Ask him to see me when he comes in," was the reply.

Testimonial Shocks Salesman

Promptly at the hour the star salesman walked into his employer's office.

"Bill," said the latter, "here's a fine testimonial for you. It's good."

"Not wasting his stenographer's time, is he?" remarked Bill as he reached for the letter. "Holy Mike!" he exclaimed as the meaning seeped in, "if the Mote-A-Truck should get hold of this!" The Mote-A-Truck was Bill's most active competitor.

"That's not the point, Bill," remarked his employer. "Let's find out what this truck has been doing. I know you did not misrepresent," as the salesman started to break out, and ringing for the shop records, it was found that the truck when delivered averaged 10 miles to the gallon, for which it was noted. The files also showed that the Invincible inspector examined the truck four times since the sale and that the driver reported it running perfectly. The balance of the report dealt with minor details having nothing to do with fuel consumption.

Handling Dissatisfied Customers

Spooner reached for the telephone and requested Blank & Co.'s number. "And, say, get me old man Blank. No one else will do."

"What's the idea, Bill?" asked his employer.

"Idea, idea," sputtered the salesman, who was working himself up to a pitch of recklessness, "why, I'll just tell that chap where he gets off. I've got a little advice to hand him, that's all."

"Don't do it, Bill," remarked the Invincible agent, as he took possession of the telephone. "Never talk when you're excited. You are going to sell Blank & Co. more trucks, but you won't get any repeats by telling old man Blank the truth, which probably is that the truck is not run properly. The driver possibly has been 'improving' the setting of the carburetor; runs the engine idle for long periods, or may not know how to save gas on grades. What we've got to find out is how to educate the drivers to conserve fuel."

"This driver of Blank's is like lots of others. He knows just enough about carburetors to tinker with them. If we call in the truck and readjust the carburetor, show Blank & Co. where the fault is, we will have antagonized the driver."

Prevention Better Than Cure

"And that's just what we should do," snapped the salesman. "Get the goods on him. Get him canned. These know-it-all drivers raise merry hob with sales. I know of—"

"Bill," interrupted his employer, "How does the army prevent soldiers from contracting typhoid?"

"Shoots some kind of dope into them," replied the salesman.

"That's the idea, a preventative. Now, what we've got to do is to inject something into these drivers that will prevent the germs of fuel waste from becoming active; make 'em immune from the attack of wastetritis."

"Can't be done. Been tried before, Bonuses and all that sort of thing. Now, if we could seal up the carburetor, that might do it."

"Yes, but it wouldn't prevent waste caused by running the engine idle. It's got to be a stronger appeal than that of the employers' interest. It can be done by appealing to the patriotism of the drivers, and here's how we will put it over.

Arousing the Driver's Interest

"We've got to become better acquainted with the drivers, to create a feeling among them that we are not merely sellers of trucks, but are interested in their welfare, and—"

"Bunkum!" interrupted the salesman. "You'll never get away with it, Hen. It's a wise bunch you're dealing with. In the first place, you can't spend your time in trying to convert them. Not if you expect to keep the wheels of the old firm turning."

"Bet you the dinners I can," snapped his employer, but Bill failed to rise to the bait, as he remembered his experience with the Rural Express plan put over by the Invincible agent.

"What I intend to do," he continued, "is to get the drivers interested in saving fuel for Uncle Sam. Get the names and addresses from every firm and user of Invincible trucks and write them a personal letter, inviting them to attend an exhibition of motion pictures showing trucks used in the war. I'll run a reel or two, after which I will get some able speaker to explain why gasoline must be saved to win the war. Expect I can obtain some kind of a letter to read from the Fuel Commissioner or the Government from Washington to give the meeting an official tone.

Frequent Inspections

"Then I'll have Jim Wilton, our foreman, give the boys a heart-to-heart talk on the same subject. Jim's part will be to encourage the boys to run in very often and have the engine looked over and the carburetor inspected. In other words, get the boys and Jim acquainted."

"Sounds good," said the salesman, "but don't you imagine that the drivers will lose the enthusiasm your show works up? They may start, but I'll bet they don't finish; that is, the majority. And what about oil? Oil is also going to be shy, I hear. Why not preach oil economy? The Invincibles use less than any truck on the market, but the crankcases may leak or something, due to home-made repairs of an improper nature."

"Good idea, Bill. We will make a drive on the oil economy as well."

"I say, Hen, how are you going to get the drivers to attend? Some will not fall for your plan."

"Simple enough," was the reply. "I'm going to write or see the heads of the concerns and explain the fuel conservation plan and ask them to suggest. I use the word 'suggest,' Bill, that their drivers attend, and believe that the firms will appreciate it. Publicity in the Tullawanda Gazette will be worded in such a manner that it will infer that any truck driver not helping save fuel for Uncle Sam is a slacker."

Stimulating Aroused Interest

"It would help some if you could hang up some kind of a prize," remarked the salesman. "Or, better still, hang some kind of a tag on the trucks showing that they were out to help win the war by saving gas. It would stop that running the engine idle game."

"Another good suggestion, Bill. We will have Jim talk to the drivers about how to make easy starting of the engine in cold weather, how to prime the cylinders, cover the radiator to prevent freezing and keep in the heat, and how to rig a shield in front of the radiator to prevent the water getting too cold. And to make the movement popular I'll offer a Liberty Bond to the driver making the best showing for each type of truck we sell."

"Good scheme, but how are you going to determine the winner?" asked the salesman. "What's to prevent some of the wise ones buying extra gas to make a mileage record?"

"Nothing," replied the man who put the Invincibles on the map in Tullawanda, "but it will not be practical, for it will cost him a bunch of money, as the contest will last for some time. And, besides, each truck will carry the Invincible fuel contest or saving tag, and it would take some nerve for a driver to go into a garage or stop at a filling station."

"He could take the tag off," suggested the salesman.

"Yes, but he won't. The rank and file of our truck drivers are patriotic, and when it comes to helping Uncle Sam win the war they can be counted on to do their bit. Why, look at the boys who have enlisted from Tullawanda in the truck service and as mechanics."

"That reminds me," said the salesman, "drivers are getting scarcer around here than hens' teeth. What are we going to do about it?"

"One thing at a time, Bill. Let's help Uncle Sam save fuel first. The driver problem will take care of itself."

Illinois Prepares to Handle L. C. L. Freight by Roads

Because of the possibility of an embargo by railroads this winter on less-than-car-load shipments of freight within a radius of 100 miles of Chicago, the Association of Commerce of that city has sent out a letter to its members with the questionnaire, designed to determine to what extent motor transportation lines and the return loads system can be utilized by shippers. The association has been requested by the State Council of Defense to assist in developing a system of highways and trolley transport within the territory tributary to Chicago, and makes the point that the moving of all possible freight over the highways by motor trucks and trolley lines is a war-time need and a patriotic duty. Whether or not the suggested embargo goes into effect, the State Council of Defense expects to be in a position to handle the situation. The important thing necessary just now is co-operation by the shippers.

The questionnaire referred to is similar to that sent out by the Motor Truck Club of Chicago, which received 90 per cent returns out of 500 questionnaires. The Motor Truck Club questionnaires, together with those of the Association of Commerce, are being turned over to the Highways Transport Committee of the Illinois State Council of Defense. All information thus obtained is being co-ordinated by the Highways Transport Committee, to the end that present motor express and freight lines can be increased and further extended.

Very good results have already been accomplished by the Highways Transport Committee, in the short time that it has been at work, and there are fifteen lines now in operation on a regular schedule, extending as far north as Milwaukee, as far south as Joliet and west to Aurora.

Supplanting Man Power in the Field by Machinery

How Motor Trucks and Tractors Are Helping Uncle Sam in Nebraska, and the Passenger Car Situation as Well

THERE is some tendency on the part of dealers at Omaha, Neb., to "bluff through" the situation arising from curtailment in the production in passenger motor cars and resultant depression in trade conditions. This is particularly noticeable among the dealers in the higher grades of cars. Whether this attitude is born of actual confidence or is meant merely for the digestion of newspapers in the hope of stimulation of trade through this medium, remains to be learned.

One fact, however, stands out clearly—business is nothing to what it should be. Not only are cars hard to get from factories, despite the roseate forecasts of dealers and distributors when talking to newspapermen, but the output is limited and transportation is a serious problem as far as passenger cars are concerned. The demand for passenger cars is by no means what it normally is at this time of the year.

This does not mean that there is not money in the state. Nor does it mean that panic has appeared among the normal circles of prospects. It means, rather, that every thought is given wholly to the matter at hand—food production and the winning of the war in the shortest possible time.

Nebraska is primarily an agricultural state. It also produces much live stock. South Omaha is rapidly advancing to the position of the world's foremost live-stock market. The state has the highest per capita wealth of any in the union. It is not a question of money, it is one of patriotism.

Roughly speaking, five per cent of Nebraska's population has gone to war. The state is relatively thinly populated. Its people number little more than a million. Yet it is a state of big farms and big enterprise. It contributes tremendously to the nation's total of grains and meats—the foods of armies. It must keep up its production, and increase thereupon, despite the fact that the best of its manhood may not take part in that production. It must do its utmost under a shortage of man-power.

Shortage of men to work the farms calls for one thing only—machinery which will supplant man-power. That machinery is motor trucks and tractors. It is to these that the attention of the producing people of Nebraska is of necessity turned. Yet many Nebraska automobile men do not realize this, but cling rather to the good old system of bluff.

Bluff sometimes wins in poker, as well as in war. But you can't bluff crops out of the ground. It takes work. It is to this fact that the attention of Nebraska farmers, who go to make up a goodly portion of the automobile prospects, is primarily directed.

The fall planting and the spring seed-time are still ahead. And the young men have gone to war. Also the new draft ages take in an appalling sweep of ages. Yet the work must be done. Nor is the fact that army requirements have cut deeply into the state's supply of horses to be by any means ignored. In this respect Nebraska is probably typical of many another state. Under such circumstances, then, the thoughts of Nebraska farmers are directed overwhelmingly to trucks and tractors, rather than to passenger cars.

And while they are thinking of trucks and tractors, they have little time or inclination for passenger cars. Your farmer likes his pleasure ride as well as any one. But he has work to do. There is the whole thing in a nutshell.

"I have sold 359 tractors in the last six weeks," said one prominent Omaha dealer to a reporter, "but I think I'll quit now, so to speak, for the winter. There is little buying during the period of snow and cold, and there is no use in tying up a lot of capital which must be carried at a dead weight for the next six months. I shall keep my place of business open, of course. There may be necessary some curtailment in my force. But I look for little selling of tractors until the frost is out of the ground again."

Some dealers have said that they didn't need the tractor or truck business to keep going, that "their splendid line" of passenger cars was always in demand, and that they will do well despite the curtailment ordered by the War Industries Board. Still others, more sensible, have turned their attention to both trucks and tractors and to farm light systems to tide them over the period which they acknowledge faces them.

Conditions must be changed, and the season is already late. Salesmen who heretofore have handled nothing but passenger cars must be taught to sell trucks and tractors and farm light systems. Those dealers and distributors who realize this fact have already begun action along this line.

Morse Data Sheets—Morse Chain Co., Ithaca, N. Y. Eighteen loose-leaf folders, prepared to fit and bind in S. A. E. folders. In addition to showing the applications of Morse Rocker Joint Silent Chain as used on engines and cars, illustrations and line cuts with data tables, give information useful to the engineer for estimating, installing and operating Front End Chain Drives. The booklet will be sent free upon request.

Prominent in the Commercial Car Industry

W. B. Hurlburt

Founder and President of the Hurlburt Motor Truck Company, New York City

(See page 62)

"I never look through a number of The COMMERCIAL CAR JOURNAL without finding something of interest and value. It stands in a class by itself. I rely on it, to a large extent, for my news of the trade."

W. B. Hurlburt

Motor Snow Plows to Keep Roads Open Next Winter

New Jersey's State Highways Transport Committee is formulating plans for the removal of snow from the highways, and at a meeting of the organization held at Trenton, September 27, the Highways Transport Committee of Washington was requested to designate those roads it desired kept open during the winter. When this information is supplied the State Committee will get in touch with various counties, upon whom will rest the responsibility for the work.

To Purchase One Hundred Snow Plows

According to the information supplied by T. J. Wasser, of the Executive Committee, the state is to purchase 100 snow plows. Ten of these are to be turned over to the State Highways Department and the balance to the counties. The plans submitted by Mr. Wasser, who is county engineer, provide for locating the plows at various intervals along the roads to be kept open. In the event of snow these plows are to be attached to motor trucks.

Plan to Keep Gutters Free

The plows under consideration are similar to the type utilized by Connecticut last winter. These are of the adjustable type, are placed in front of the motor truck, and Mr. Wasser's plan is to push the snow from the gutters on either side of the road to the center. It is pointed out that this method will keep the gutters free for carrying off the water as well as prevent the water from flowing back on to the road, as it generally does when the snow is pushed to the sides of the highway. In the event of a heavy fall of snow, and on a narrow road, provision will be made for handling it.

Meeting Well Attended

The meeting was well attended and was presided over by the chairman, David Harper. C. A. Musselman, regional director, was present and addressed the members. The organization is now practically completed, and its members are confident that it will not only put across the Return Load movement and Rural Express in New Jersey, but be prepared to meet any emergency that may arise through curtailment of the common carriers. J. F. Winchester, secretary of the Motor Truck Club of New Jersey, has been added to the State Highways Transport Committee as vice chairman.

Fulton Motor Truck Co., of Farmingdale, L. I., has recently issued a statement showing that the retail distribution of Fulton trucks in July, 1918, was 300 per cent greater than during the same month a year ago. William Fulton Melhuish, president of the company, believes that this great increase is due to concentration on one model. Plans are being laid for a production in July of next year which will be three times as great as it was this year.

The Business Career of W. B. Hurlburt

The story of the Hurlburt Motor Truck Co. is really nothing more than the story of the later business caerer of its founder and president, Mr. W. B. Hurlburt, for it was through him that the company had its organization, and it is due largely to his efforts that the company at the present time can show over two million dollars' worth of unfilled orders on its books.

The company was incorporated and launched with practically no capital, only $12,000 being placed in the concern by Mr. Hurlburt and a few other friends for the purpose of producing and developing an experimental vehicle. Compared with the immense amount of capital which has been put into other companies in this field, it looked a certainty that the company would be a failure, even though it did produce a good truck, because of the lack of funds to push production. Still the policy of the concern and the quality of the manufactured product was such that it has actually placed the Hurlburt Co. in a position ahead of some of the concerns organized and producing years ago. Many times things looked very blue, and the friends who were interested tried to persuade Hurlburt to throw up the whole job and stand to lose what he invested, but he refused to be convinced he was beaten, and against the greatest odds, slowly built up the company to its present strength.

Mr. Hurlburt is a young man, yet he is a veteran in the automobile fields. His first position of importance in the east was as director of the selling forces of the Packard Co., in the Metropolitan district. The new force and sales ability he put into that organization is familiar to any one acquainted with the industry at that time, and now that same energy is utilized to sell and make a name for the Hurlburt truck.

After spending fifteen years in the selling and mechanical end of the automobile business, Mr. Hurlburt became filled with the idea to build a "really great motor truck." He studied what had been done in America in the truck line, and then went to Europe to study conditions over there. He spent much time at the DeDion, Panhard and other French factories. It was during this visit abroad that he became convinced of the fact that the worm and gear were the best drive, and after seeing them in operation in England, he decided that that would be the drive for his truck.

After two years of study and investigation, he further developed the plans for his truck. There were no pay days while the development was going on, and his funds began to run seriously low, but he was going to "see it through." The real test of his faith in himself was when he turned down a $35,000-a-year position, to spend his time in the development of his ideas at $60 a week.

Then the company was incorporated, under its present name. In those days, so people say, the working force consisted of three men, Hurlburt, Hurlburt and Hurlburt, but gradually he got other men interested, and they scraped together money enough to build the first model. It came out in 1912, and it was put together by Mr. Hurlburt. In 1913, four trucks were turned out; in 1914 the output was 15 trucks; in 1915, 96; in 1916, 200, and in 1917, 300, with over a thousand unfilled orders on the company's books at the close of the year. In the middle of 1917 sufficient funds came into the company so that the work could be carried on without financial worry.

The truck as it is produced now is the same as the first model, and it would need an expert to tell them apart. Instead of changing design year by year, the product was refined and improved and now it is a finished product in every particular.

Acme Purchases Plant of the Cadillac Machine Company

The area of the Acme plant at Cadillac, Mich., has been increased 70 per cent. by the purchase of the plant of the Cadillac Machine Co. The machine shop equipment acquired from the Cadillac company enables the company to handle its machining, forging, heat-treating, etc. The Acme company now possesses a foundry, a machine shop and a structural steel shop, and is able to build directly under its own supervision all truck frames and steel bodies, and to do the steel work on all bodies which was formerly handled under contract with the Cadillac Machine Co.

The Acme company has also added to its plant a completely equipped printing plant, which will handle all of the small printed forms used by the company and the advertising literature furnished to distributors and dealers.

Willys-Overland Takes Over Moline Plow

The Moline Plow Co., with plants at Moline, Chicago, Rock Island and Freeport, Ill.; Stoughton, Wis.; Minneapolis, Minn., and Poughkeepsie, N. Y., is now under control of the Willys-Overland Co. The Moline company, which manufactures the Moline Universal Tractor, is one of the oldest farm implement makers in the United States, having been founded in 1865. The Moline organization will remain intact, and the company will be operated under the same management as heretofore. G. F. Allen, vice-president and general manager, will become president and general manager.

Leander J. Hoover Dies

Leander J. Hoover, president of the Hoover Steel Ball Co., Ann Arbor, Mich., died recently, after an illness lasting but a month.

Mr. Hoover organized the ball company which bears his name five years ago. He was also organizer and president of the King Trailer Co., Parker Mfg. Co., Evertight Nut Co. and the Fords Products Co.

First Motor Truck Freight Service Organized in Canada

Estimate a Net Profit of $100,000 per Year With Twenty-five Trucks in Service. Specializing in Short Hauls

By W. M. GLADISH

THE first definite move in Canada to organize a motor truck freight service on a truly large scale, consists of the formation of the Automotive Transports, Ltd., headquarters Toronto, Ont., with a capitalization of $500,000. This company is a development from two active companies, the A. R. Colwill Cartage Co., of Toronto, and the Toronto Terminal and Highway Transports, Ltd. The men behind the new company first demonstrated that a highway transport proposition would pay. The experiment proved so successful right from the start that the decision was reached to organize a definite truck transportation company. The Automotive Transports, Ltd., was formed and the truck business of the Colwill and the Toronto Terminal and Highway Transports companies was taken over. Automotive Transports, Ltd., jumped right into the business with a fleet of twenty-five motor trucks and a definite policy for the handling of freight between a number of cities of Ontario. The routes designated so far for this railless railway system include the roads leading out of Toronto to Hamilton, Brantford, Guelph, London, Stratford, Orangeville, St. Catherines, Niagara Falls, Buffalo, Rochester, Batavia and intervening points. Incidentally, the Automotive Transports, Ltd., is probably the first truck transportation company to undertake an international business.

Start Service With Twenty-five Trucks

The fleet of trucks owned by the Automotive Transports, Ltd., consists of various sized units. The list includes ten 5-ton Sterling trucks, five 3½-ton Sterling trucks, five 2½-ton Sterling trucks, two 2-ton Nash trucks and three 1-ton Ford trucks. The company, which is affiliated with the Toronto Terminal Warehouse Co., Ltd., has established two terminal garages, the Toronto terminus being at 26 Duchess St. A Hamilton, Ont., terminal is located at Queen and York Sts., Hamilton. The Toronto Terminal Warehouse Co., Ltd., has a structure providing two million cubic feet of warehousing capacity. The Automotive Transports, Ltd., has been granted an Ontario charter for its business.

Study Methods of United States Concerns

The subject of truck freighting was thoroughly investigated by the Toronto men before they launched their enterprise. It was found that there are approximately 1500 motor transport companies in the United States, most of which were organized during the past six months. The work of the United States companies was studied with the result that the Toronto organization became a very busy concern immediately after it had been launched. Announcement is made that the Automotive Transports, Ltd., has already secured inter-

Lieut. Col. W. S. Dinnick
President of the Automotive Transports, Ltd., of Toronto, capitalized at $500,000

city hauling contracts with some of the largest business houses in the city, including the T. Eaton Co., Ltd., the large department store; the William Davies Co., Ltd., the big Canadian packers; the Park-Blackwell Co., Ltd., also packers, and others. Officials of the company also declare that the trucks have all that they can carry in the way of individual hauling orders.

An important detail is that the company has arranged to insure all merchandise carried against all risks, including breakage, fire, theft and damage from weather, through a blanket insurance policy covering all its trucks.

The manner in which the company estimated the cost of operating a five-ton truck is interesting. It was figured that one truck would cover eighty miles in a day. The investment represented in the new truck is $7500. Then came the following charges:

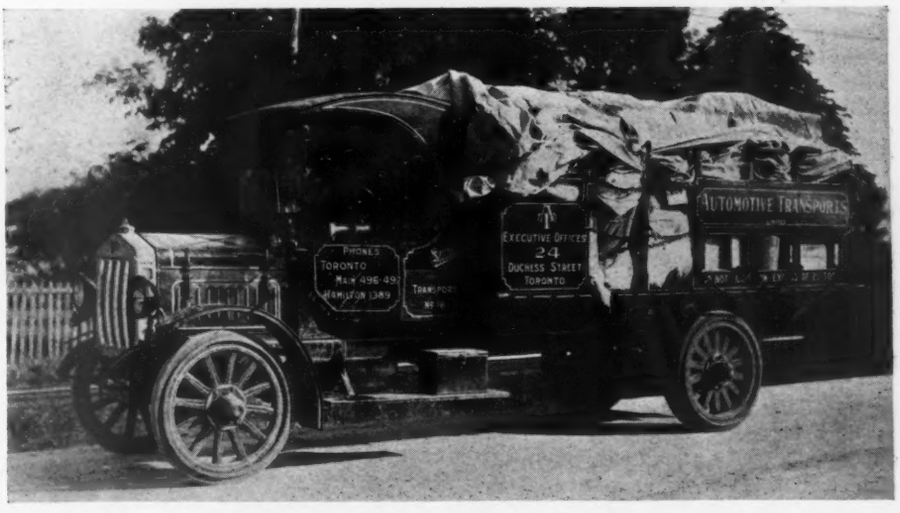
Fixed Charges.

	Per Year	Per Day
Driver	$1,200.00	$4.00
Interest 6% on total investment	450.00	1.50
Liability Insurance	60.00	.20
Collision Insurance	31.20	.03
	$1,741.20	$5.73

Variable Charges.

Depreciation 20%	$1,700.00	$5.66
Tires	1,602.48	5.34
Gasoline, 11 gal. per day	1,155.00	3.85
Oil & Grease, 4-5c. per mile	192.00	.60
Maintenance and Repairs.	372.00	1.24
	$6,762.68	$22.42

These are based on Canadian prices, of course. The retail price of gasoline in Toronto, for instance, is thirty-five cents per Imperial gallon, which is one-fourth larger than the wine gallon used in the United States.



Transport No. 16 of the Fleet of Twenty-five Motor Trucks in the Over-Road Service of the New Antomotive Transports, Limited, Toronto

This is one of the two and a half ton models, and the merchandise is carefully wrapped and covered with tarpaulins, to protect the goods from the weather. Incidentally, all shipments are covered by a blanket insurance policy against fire, theft, and collision risks.

The overhead expenses of the company have been estimated as follows:

Manager and Secretary	$4,100	
One night porter at Toronto	1,040	
Two day porters at Toronto	2,080	
Two mechanics	3,600	
Two washers	2,000	
Garage	1,200	
Stationery and supplies	1,200	
Garage expenses	1,200	
Light, power and water	200	
Business tax	200	
Two telephones	160	
Accountant and stenographer	2,800	
		$19,780

At Hamilton Terminal:

Manager	$2,000	
District Freight Agent	2,080	
One day porter	1,040	
One night porter	885	
Rent	360	
Telephone	40	
		6,405
		$26,185

Anticipated Profits.

	Each truck per day	Fleet per day	Fleet per year
Average Income per truck (20 trucks)	$50.00	$1,000.00	$300,000.00
Average expense per truck (25 trucks)	22.42	560.50	168,150.00
Gross Profit	$27.58	$439.50	$131,850.00
Less overhead			26,185.00
Net Profit			$105,665.00

In the way of receipts, the company has anticipated that the average income from each truck per day will be $50 and the daily income from a fleet of twenty trucks will be $1000. For a fleet of twenty trucks the yearly revenue would be $300,000. In figuring out the anticipated profits, the company considers that twenty of the twenty-five trucks will be in operation each day, but the expenses are based on the twenty-five truck basis. A net profit of over $100,000 per year is estimated in the following manner:

The railway freight rates between Toronto and Hamilton, a distance of about forty-two miles by rail, vary from 18 cents to 29 cents per 100 lb. Including the cost of cartage at each city, shipments of freight by rail between the two cities amounts to 38 cents per 100 lb. According to the Automotive Transports Ltd., a charge of 40 cents per 100 lb. by motor truck will show a profit to the company and save the manufacturers, distributors or retailers a considerable profit in the way of time saved, direct handling, etc. Shipping by rail is a matter of days; by motor transport a matter of only hours.

The railless railway map of the Automotive Transports, Ltd., shows a network of routes extending westward from Toronto, branch routes extending toward Guelph, Brantford, London, Stratford, Niagara Falls, Buffalo, etc. The longest distances on the schedule include the following: Toronto to London, 115 miles; Toronto to Buffalo, 120 miles; Toronto to Stratford, Ont., 100 miles. The company is specializing in the short hauls.

Officials of the company include several prominent men of Toronto. The president is Lieutenant-Colonel W. S. Dinnick, who is associated highly in both financial and public circles. The vice-president is Charles Vail, of the Toronto Terminal Warehousing Co., Ltd., and one director is N. S. Gotshall, vice-president of Grace Motors, Ltd., Toronto, distributors of various makes of trucks. The traffic manager is Major Ingram.

Immediately after its incorporation, the company began educating the public with full-page advertisements in several Toronto newspapers, showing that the enterprise is going right after all the business it can handle.

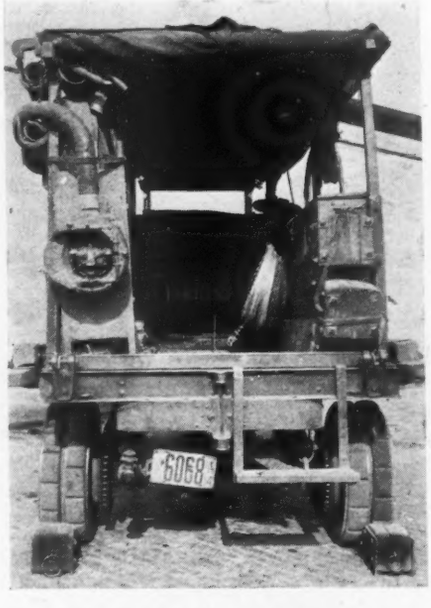
Chicago Telephone Company Has a Truck With a Pull

The Chicago Telephone Co. is literally pulling the insides out of the Illinois Tunnell Co.'s old telephone system. The "Independent" company has ceased to exist as an operating telephone line, leaving only in service the freight lines for which the tunnels were originally constructed under Chicago's streets.

The 3½-ton Mack truck that is doing the actual work of pulling out the old cable is equipped with a 40-hp. engine, which provides the motive power for the truck and also operates the pulling winch, as well as a centrifugal water pump. On this winch is a ¾-in. steel wire rope, 1000 feet long.

In action, Foreman Stewart simply hooks one end of this steel rope to one end of a section of old telephone cable and shouts to his assistant "let's go," and the Mack engine pulls from the conduit the old lead and copper cable weighing untold tons as easy as a chicken pulls an angle worm out of the dirt.

One day recently this truck was seen by our Chicago correspondent in the act of pumping all of the water out of a man hole in La Salle street and incidentally clearing a telephone conduit, over one hundred yards in length, of water to permit repair work being done. The pump with which it was lifting these thousands of gallons of water is of the centrifugal type and is also operated by the truck engine.



Rear View of the Mack Truck, Showing Winch and Centrifugal Pump

George Kline, Chicago Superintendent of Construction, for the Chicago Telephone Co., took a few minutes to tell about the wonders of this equipment. "In pulling cable, for instance, the truck does the work of twenty men with the regular crew of seven. It has a tri-pod derrick, which can set up or take down with safety the heaviest pole in the most crowded street. This work formerly required fifteen men. We have pulled many pieces of cable over 1000 feet in length with it, the heavy telephone cables, and one piece I remember was 1400 ft. long. Yes, Park is right," he continued. "He and his crew worked 24 hours without a stop, during the flood last spring, pumping out Speedway Park. It is a great man saver, and every man counts right now."

A Federal Road License Would Eliminate This

The Motor Truck Club of New Jersey is considerably incensed over the arrest of some of its members in Maryland who are not registered in that state. It is claimed that the authorities of a certain town set free the drivers with a warning that they must register the trucks and that they would be arrested if they failed to do so. The club took the matter up with Commissioner of Motor Vehicles Dill, who wrote the Maryland authorities, calling attention to the 15-day reciprocity clause in force between New Jersey and Maryland. It is intimated that New Jersey would retaliate if reciprocity was not practiced by Maryland. The Motor Truck Club holds that the 15 days' privilege has not been abused in Maryland and that the drivers arrested were operating trucks carrying war material.

Colorado Investigates Trucking Rates

A tendency to overcharge for motor-truck hauling on the one hand and an inclination on the other to bid against competitors by undercharging has led the Public Utility Commission of the State of Colorado to conduct an investigation of rural express rates for the entire state. This matter of charges is one which is receiving the consideration of express companies in every state at the present time. In some localities the problem has been solved by charging the same rate as that charged by the railway express. But this is obviously not a satisfactory solution in every case. Colorado's example in investigating rates may be profitably followed by other states. It is hoped that the investigation may lead to the establishment of a uniform basis of rates.

E. G. Mfg. Co. has been organized at New York City by Emil Grossman, former president of the Emil Grossman Mfg. Co. The new company is established at 50 W. 54th St., and its business will consist of locating surplus stocks of automotive equipment and supplying jobbers whose stocks are short.

Personal Items

Fred C. Henderson has been elected president of the Signal Motor Truck Co., Detroit, Mich.

E. S. Ralph has been made advertising manager of the R. & P. Tractor Co., Alma, Mich.

A. Y. Bartholomew has recently been made assistant sales manager of the Avery Co., Peoria, Ill.

H. F. Harris is now general sales manager of the Republic Motor Truck Co., of Alma, Mich.

L. E. Willson is now general sales manager of the Dauch Mfg. Co., Sandusky, Ohio, which makes the Sandusky tractor.

Frank E. Wing, Boston, Mass., New England distributor of the Marmon car, is now distributor also of Hurlburt trucks.

L. Markle has resigned as vice-president and general sales manager of the Republic Motor Truck Co., Inc., Alma, Mich.

J. B. Bleiler has been appointed special representative of the truck tire division of the Republic Rubber Corp., Youngstown, Ohio.

J. H. Gould, formerly of the J. H. Gould Co., Detroit, has been appointed chief engineer of the Buffalo Pressed Steel Co., Buffalo.

J. L. Hibbard is now foreign sales manager for the Cleveland Tractor Co., Cleveland, Ohio. He was formerly associated with the Studebaker Corp.

P. K. Hexter, formerly vice-president and sales manager of the Day-Elder Motors Corp., Newark, N. J., has been commissioned a captain in the Motor Transport Corps.

B. D. DeWeese has been appointed sales manager of the commercial truck body department of the Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.

F. J. Jarosch has resigned his position as chief engineer of the Bearings Co. of America, and is now a member of the Liberty Engineering Co., Inc., Lancaster, Pa.

C. W. Whitson, formerly with the Fulton Motor Truck Co., has recently joined the Panhard Motors Corp., Grand Haven, Mich., in the capacity of general sales manager.

E. J. Wright has been appointed assistant sales manager of the Dort Motor Car Co., Flint, Mich. He was formerly associated with the Allen Motor Car Co.

Graham W. Brogan has been made advertising manager of the Duesenberg Motors Corp., Elizabeth, N. J. He was formerly assistant to the general sales manager of the company.

M. W. Hanks has been released from his duties as standards manager of the Society of Automotive Engineers, and is now aeronautical mechanical engineer with the Navy Department.

Jay E. Chilson, formerly connected with the H. W. Johns-Manville Co., is now Chicago representative of the L. H. Gilmer Co., Philadelphia, Pa., manufacturer of Gilmer endless belts.

B. B. Holt has resigned as purchasing agent of the Harroun Motors Corp., to become sales manager for the manufacturers' division of the Bradfield Co., Kresge Bldg., Detroit.

Zeno D. Barnes has recently joined the operating department of the Aluminum Castings Co., and will make his headquarters at Cleveland. He was formerly with the Westinghouse Air Brake Co.

J. W. Wellington has been appointed general manager of the Dauch Mfg. Co., Sandusky, Ohio. He was formerly production manager of the New Castle, Ind., plant of the Maxwell Motor Co.

Alfred W. Sewell, for the past four years manager of the Buffalo, N. Y., branch of the Sewell Cushion Wheel Co., Detroit, Mich., has been appointed manager of the Detroit branch, with headquarters at the factory.

Ralph J. Handy has recently been appointed sales manager of the Lauton Truck Co., Youngstown, Ohio. He was formerly a distributor of the Tonford truck attachments in Detroit.

B. F. Page is now assistant to L. P. Fortin, acting manager of the Oneida Motor Truck Co., Green Bay, Wis. He was formerly eastern representative of the Four Wheel Drive Auto Co.

Charles H. Gressiee has been appointed district sales manager for the middle western section by the All-American Truck Co., Chicago, Ill. He was formerly division sales manager of the Selden Truck sales Co.

E. B. Foote has recently been appointed sales manager of the wheel division of the Jaxon Steel Products Co., and will make his headquarters at 3066 West Grand Blvd., Detroit, Mich.

W. H. Miller is now district representative for the Garford Motor Truck Co., Kansas City, Mo. He was formerly assistant manager of the South Bend branch of the Studebaker Corp.

Frank C. Kip, sales manager of the Motor List Co., Detroit, has recently been appointed to the Industrial Service Division of the Bureau of Labor Statistics, Department of Labor, Washington.

R. W. Walker has been made assistant general manager of the Hurlburt Motor Truck Co., New York City. When he joined the company four years ago he was made assistant sales manager and later sales manager in charge of advertising.

Clay G. Howery, formerly associated with the Continental Motors Corp., has been appointed general manager of the American Steel Supply Syndicate, Detroit. This corporation is devoting its facilities to government work, producing principally parts for motors.

Leon Percy
Who has been made production manager of the Detroit Battery Company, Detroit, Mich.

Guy B. Wright
Who is now connected with the sales department of the Buda Company, Harvey, Ill.

Removals and Trade Changes

Williams Mfg. Co., Santa Ana, Cal., has removed to 125 W. 38th St., Los Angeles, Cal.

Auto Parts Mfg. Co., Milwaukee, Wis., has been succeeded by the Madger Mfg. Corp.

Parkview Sales Co., Detroit, Mich., has recently changed its name to the Carrier Motor Truck Co.

Air-O-Flex Automobile Corp., Detroit, Mich., announces the removal of the offices of the company from 570 Penobscot Bldg. to the factory at 519 Hillger Ave.

LaFrance Motor Truck Co., Inc., Elmira, N. Y., at a recent meeting of stockholders decided to change its name to the Ward LaFrance Truck Co., Inc.

Halladay Motor Car Co., Attica, Ohio, has recently purchased the building formerly occupied by the Cameron Car Co., and has added a truck to its line.

Wells Mfg. Co., Fond du Lac, Wis., manufacturer of electric lighting units and accessories for motor vehicles, has recently moved into a new fireproof building which gives the company 6000 sq. ft. of floor space.

Powell Supply Co., Omaha, Neb., has taken over the entire stock of the Omaha Auto Supply Co., which is said to be worth $50,000. The Omaha Auto Supply Co. has been in existence seven years.

Memphis Auto Top Co., Memphis, Tenn., has recently merged with the J. G. Stone Auto Top Co., also of Memphis. The new company will be known as the Stone-Croce Auto Top Co.

Amazon Rubber Co., Akron, Ohio, has purchased the tire accessories business of the O'Neil Tire & Rubber Co., of Akron. The purchase includes the exclusive right to the name "O'Neil" as an accessories trade name.

Mayer Bros. Co., Mankato, Minn., manufacturer of tractor trip hammers, etc., has changed its name to Little Giant Co. This company owns all patents and trade marks in this and several foreign countries on its Little Giant products and a change in corporate name was considered advisable.

Wisconsin Duplex Automobile Co., Oshkosh, Wis., will in future be known as the Oshkosh Motor Truck Mfg. Co. The trademark "Oshkosh" has been adopted for its product. The object of the change is to give due recognition to the city in which the truck is manufactured, and also to avoid confusion arising from the circumstance that several other concerns include the word "duplex" in their corporate names.

Electric Steel & Forge Co., Cleveland, Ohio, has taken over the Crucible Steel Forge Co. of that city, and plans to extend facilities and increase production are already under way. The products of the company will include carbon and tungsten tool steel, nickel, vanadium, chrome, chrome - vanadium, chrome-nickel, silicon-manganese and other kinds of tool steel and special alloy steel. Heat-treated piston rods, die blocks and rings, gun forgings, gun mount forgings, spindles, gear rings, blanks and shafts, will be among its specialties. The officers of the company are: James H. Foster, president; D. W. Wells, vice-president and general manager; C. R. Cross, secretary; A. B. Smythe, treasurer.

New Agencies

Roth-Cadillac Co., Erie, Pa., has arranged to handle Cleveland tractors in that district.

Standard Motor Sales Co., San Antonio, Texas, will handle the distribution of Cleveland tractors in that district.

Tulsa Four Auto Sales Co., Oklahoma City, Okla., will distribute the Tulsa Four in that state.

National Motor Co., Denver, Colo., will distribute Master trucks in that section of the country.

Pence Automobile Co., Minneapolis, Minn., has closed a contract for the distribution of Master trucks in the Northwest.

Stratton-Dawson Automobile Co., Memphis, Tenn., has recently closed a contract for the distribution of Master trucks.

Donovan Motor Car Co., Boston, Mass., has taken the distribution of Sanford motor trucks for Boston and vicinity.

Foster-Hood Sales & Service Co., 418 Joseph Campau Ave., Detroit, has recently been appointed Michigan distributor for L. V. Flechter & Co.

Simons Sales Co., Detroit, Mich., has taken over the distribution of the Cleveland tractor for eastern Michigan.

Worman Auto Co., Madison Ave. & 11th St., Toledo, Ohio, will distribute G. M. C. trucks in northwestern Ohio.

Southwest Nash Motor Co., St. Louis, Mo., has taken over the distribution of Nash passenger cars and trucks in the St. Louis territory.

Jackson Motor Car Co., Boston, Mass., will distribute Cleveland tractors in eastern and central Massachusetts and the state of Rhode Island.

R. E. Taylor Corp., New York City, will distribute Wichita trucks in all territory east of the Mississippi, Canada, Missouri and Minnesota.

Mulford-Haas Co., 1836 Broadway, New York City, has closed a contract with the Acason Motor Truck Co., for the distribution of Acason trucks in the Metropolitan district.

Fanning-Mathis Co., 720-22 N. Broad St., Philadelphia, Pa., will distribute Sanford trucks in the Philadelphia territory.

Hardwick-Newton Co. has recently been established at Knoxville, Tenn., and will distribute United States motor trucks, Lalley light and power plants and the Trailmobile in eastern Tennessee and northern Georgia and Alabama.

Duplex Truck Co., Lansing, Mich., announces that the following dealers have become distributors: Duplex Truck Sales Agency, Denver; Sutcliffe Reo Auto Co., Waterloo, Ia.; Don Sales Co., Rock Island, Ill.; Wichita Auto Co., Wichita, Kan.; Greenlaw Truck and Tractor Co., New Orleans, La.; Linscott Motor Co., Boston, Mass.; Nevada Sales Co., Reno, Nev.; Welfare Auto Co., Wilson, N. C.; A. H. Jones, Hastings, Neb.; West Side Motor Co., Hamilton, Ont.; Stapleton Motor Sales Co., Oklahoma City, Okla.; Northwest Auto Co., Portland, Ore.; Harrisburg Auto Co., Harrisburg, Pa.; B. L. P. Motor Co., Philadelphia, Pa.; West Penn Duplex Truck Co., Pittsburgh, Pa.; Grady Motor Co., Salt Lake City, Utah; Myers Motor Co., Lynchburg, Va.; Duplex-Wisconsin Co., Milwaukee, Wis.; Frawley Motor Car Co., Dallas, Tex.; A. A. Tillman and Co., Hancock, Mich.; J. W. Wetzel, Ackermanville, Pa.

Acason Motor Truck Co., Detroit, Mich., has appointed the following dealers: Dixie Motor Sales Co., Memphis, Tenn.; Harper Bros., Hackensack, N. J.; Henderson Motor & Supply Co., Grand Rapids, Mich.; Redwine Bros. Motor Co., Spiro, Okla., and Fort Smith, Ark.; Hawkins Russell Motor Co., Atlanta, Ga.; W. H. Gibbons, St. Thomas, Ontario, Canada; Bonner Acason Co., Norfolk, Va.; Ohio Oldsmobile Co., Cleveland, Ohio; Sloan Motor Co., Greensboro, N. C.

Duplex Truck Co., Lansing, announces the appointment of the following dealers: Dinsmoor & Co., St. Marys, W. Va.; Howell Motor Co., Baltimore, Md.; W. Z. Davis, Miami, Fla.; Purdy Motor Co., Tulsa, Okla.; Stewart Motor Co., Reading, Pa.; Capital Motor Car Co., Columbus, Ohio.; R. P. Taber, Inc., Hartford, Conn.; G. A. Lewis, Mankato, Minn.; Sears Auto Co., Des Moines, Ia.; Heath Auto Co., Sioux City, Ia.; Murphy Machinery and Equipment Co., Memphis, Tenn.; Franklin Motor Co., Richmond, Va.; Reo Motor Sales Co., Parkersburg, W. Va.; Fawkes Auto Co., Minneapolis, Minn.; Spooner-Campbell Co., Gouverneur, N. Y.; McChesney & Montgomery, Lewistown, Mont.; Security Motor Co., Kansas City, Mo.; Joseph Maw & Co., Winnipeg, Can.; United Garage Co., Toledo, Ohio; Garden City Garage, Missoula, Mont.; Duplex Truck Sales Co., Nashville, Tenn.

The Motor Truck as an Aid to Business Profits—is the title of a 540 page book written by S. V. Norton, manager of the truck tire sales department of the B. F. Goodrich Rubber Company. It is the first complete and authoritative work dealing with the new hauling estate. It aims fundamentally to open the truck owner's eyes to new economies, to afford him ways and means for augmenting his business and decreasing his upkeep costs. It covers the field of the motor truck exhaustively and is extremely valuable for the man who is considering whether he ought to have two trucks instead of one, who is debating on the advisability of trailers, loading and unloading devices, etc. The fund of information is drawn from the experiences of big and small users. S. V. Norton, the author, has been closely associated with the motor truck industry since its inception. His experience and intimate knowledge of motor trucks and their application to present day business problems thoroughly qualifies him to discuss the subject from every angle. The book is published by the A. W. Shaw Company, of Chicago. It contains 335 photographs and drawings, charts, folded inserts, blue prints and tables touching every phase of the motor truck's relation to profitable business.

Questions Essentiality of Jitneys

Are jitney buses essentials and should the operators of these be classed as essentials? This is a question that has been brought up by E. C. Faber, manager of the American Electric Railways Association, with the U. S. Employment Service, Department of Labor. In his letter Mr. Faber called attention to the methods employed by some operators of the buses in diverting passengers from the street cars, and stated that in many instances the use of buses was unnecessary and, therefore, non-essential. The matter is being given consideration by the proper authorities.

Do You Know That—

The total war orders of the automobile industry are estimated at between $750,000,000 and $800,000,000, and it is stated that of these the orders being filled by the Ford Motor Co. represent from 40 to 45 per cent.

Approximately two-thirds of the women employed by the Packard Motor Car Co. were trained in the school which that company has established at its plant. The present enrollment is 230, and 1259 have already been graduated.

Goodyear Tire & Rubber Co., Akron, O., in one year salvaged $3,000,000 worth of materials that might have been wasted, had not its workmen evidenced a spirit of co-operation. The output of 98 per cent of the country's manufacturing concerns does not exceed this amount.

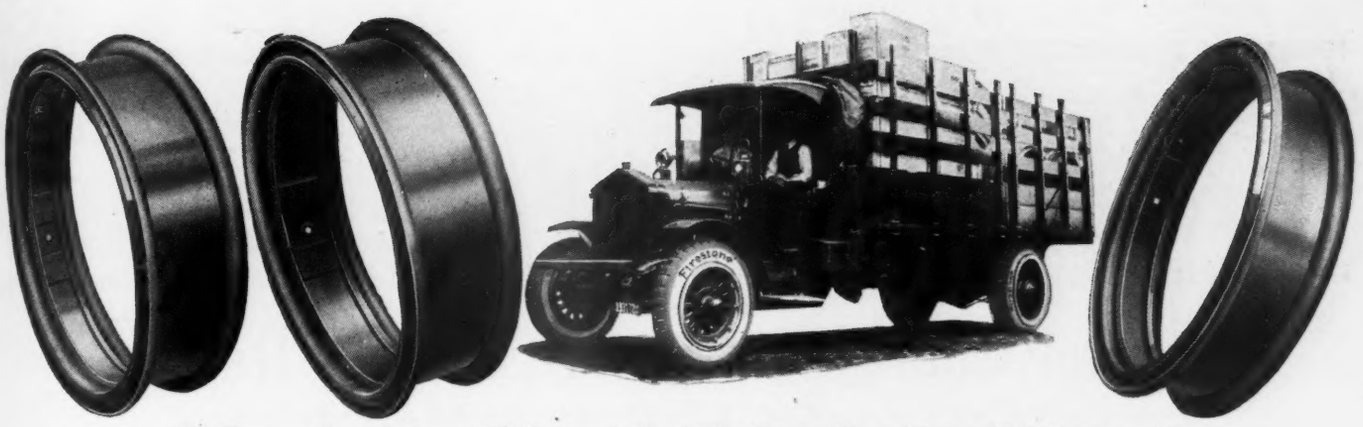
A tractor at the University of Saskatoon is being driven with gas made from wheat straw. It has been found that this straw, when heated in a retort, gives off more and better gas, ton for ton, than coal. Motor cars with overhead gas bags are run fifteen miles on one charge of gas.

Fifteen Pierce-Arrow trucks are being used in the Miami, Ohio, Conservancy district, where $25,000,000 is being spent in an effort to prevent the recurrence of floods. The trucks are used to carry supplies and machinery from Dayton to the several working points, or from the field to Dayton; to transport supplies and materials from the railroad to working points; supply fuel to engine and other machines, including steam dredges and to carry food to men in reconstruction camps.

The natural gas gasoline industry made marked progress in the United States in 1917 according to statistics compiled by the United States Geographical Survey, Department of the Interior. The quantity of raw gas recovered from natural gas in 1917 was 217,884,104 gallons, a gain of 114,391,415 gallons or 111 per cent over the output of 1916. The quantity of commercial gasoline represented by the output of raw gasoline in 1917 was approximately 300,000,000 gallons.

Owners' Transportation Co., Boston, Mass., has opened an office at 1106 Commonwealth Ave., and will operate a fleet of trucks for freight haulage between Boston, New York City, Philadelphia and Baltimore. Chas. H. King is the Boston manager.

G. A. Schacht Motor Truck Co., Cincinnati, Ohio, is building a new factory addition. The structure will be one-story, 75 by 250 ft. It will be used for assembling and will be ready for occupancy November 1.



The Firestone Type C Demountable Pneumatic Truck Tire Rim for Tires of 6, 7 and 8-inch cross section

The Largest Rims for Pneumatic & Solid Truck Tires

are made at Rim Headquarters

The Firestone Steel Products Co., Firestone Park, Akron, Ohio

FIRESTONE leadership and dominance in the manufacture of rims, established in 1907 by the development of the first American demountable rim, continues to set the pace in variety of rims, in quantity of output, and in the development of new types of rims for new requirements of truck tire service.

Witness the following facts:

The demountable rim for the 6, 7 and 8-inch Giant Pneumatic Truck Tire is a Firestone product, perfected in advance of the pneumatic truck tire, and making this tire practical for use on trucks where speed and long-distance travel are essential.

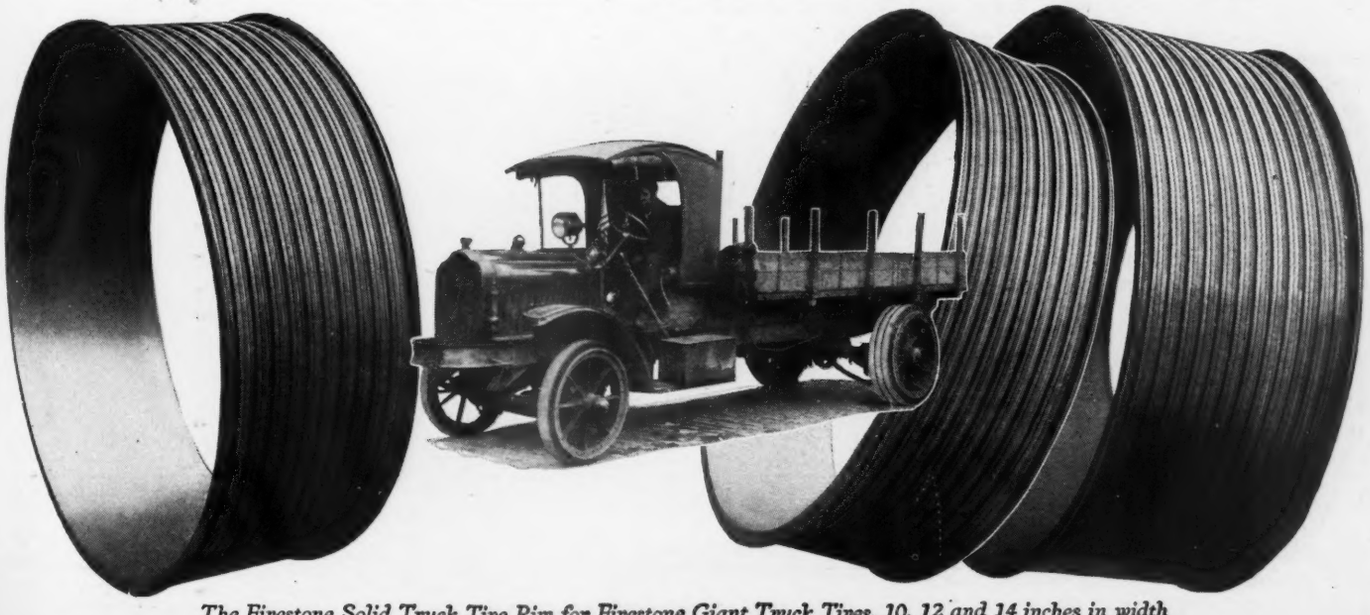
Over 50 per cent of the solid truck tire rims made in America and used on American trucks are Firestone Rims.

The only 10, 12 and 14-inch solid truck tire rims made in the world bear the name of Firestone.

There is a Firestone Rim for every kind and size of tire, and for every type of service.

Any Tire Gives More Service on Firestone Rims

The Firestone Steel Products Company is now producing Solid Truck Tire Rims and Pneumatic Truck Tire Rims in greater and greater quantities.



The Firestone Solid Truck Tire Rim for Firestone Giant Truck Tires, 10, 12 and 14 inches in width manufactured exclusively at Rim Headquarters

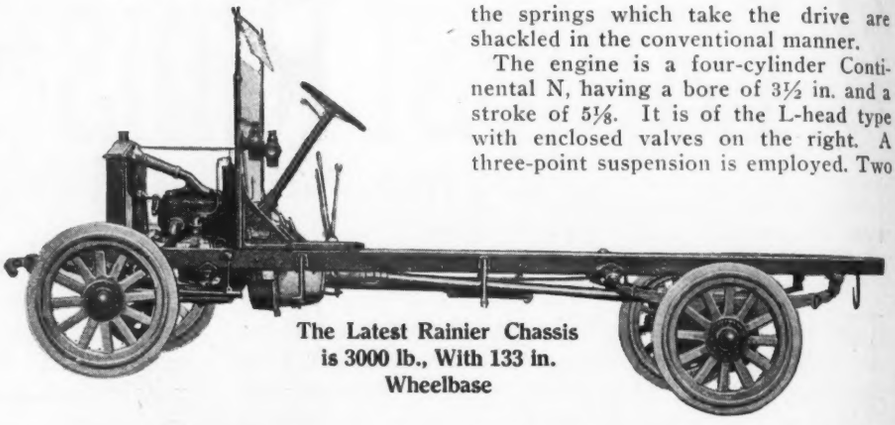
Several Changes in Design of New Rainier One and a Half Ton Model

By C. P. SHATTUCK

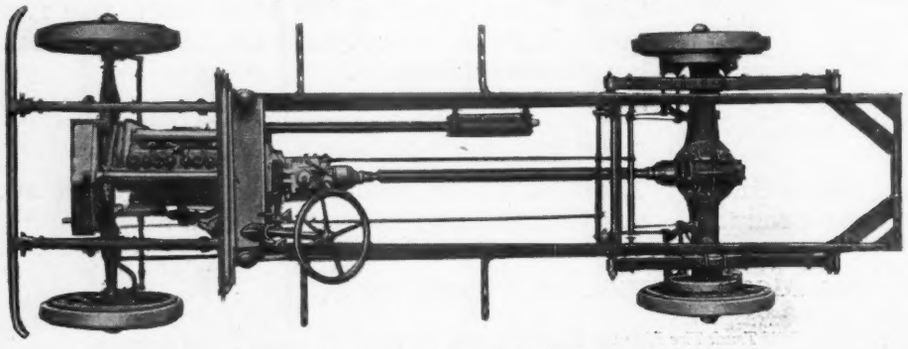
IN RESPONSE to an increasing demand for a 1½-ton capacity truck capable of being operated and maintained at a minimum of cost, the Rainier Motor Corp., Flushing, L. I., N. Y., is producing a 3000-lb. capacity chassis. The new chassis, which will sell for $1790, f.o.b. New York, is the fourth to be brought out by the company, whose line includes a ½-, ¾- and 1¼-ton chassis, these selling at $1150, $1250 and $1475, respectively.

Change in Spring Design

The new model differs in several respects from those preceding it, the changes including a 133-in. wheelbase, new engine, extra heavy propeller shaft and universal joints, special radiator and rear spring suspension. The double-spring safety shackle or three-point suspension featured on the earlier models, which provided for the second leaf taking the drive in the event the main broke, is replaced by a new Perfection design. It incorporates the same principle, however, the main leaf curling over the bracket or spring bolt and the second leaf encircling the main and forming an eye. The bracket is of heavy, substantial construction, and includes a clamp for retaining the 1-in. round-head spring bolt. Another change is in location of muffler, it being placed amidships.



The Latest Rainier Chassis is 3000 lb., With 133 in. Wheelbase



Plan View of the New Rainier Chassis

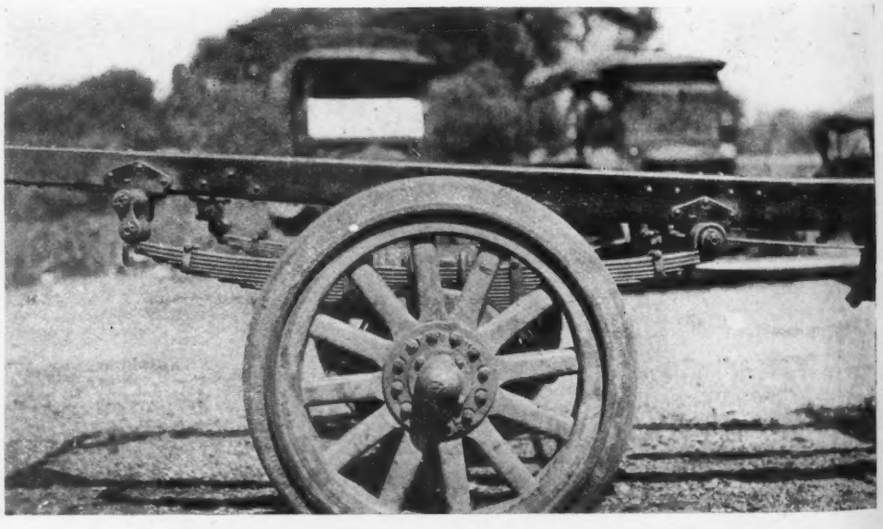
Spring Easily Displaced

The springs can be easily displaced at this end by removing a castellated nut and washer and the spring bolt by loosening the nut and bolt at the top of the bracket, which is split. The rear end of the springs which take the drive are shackled in the conventional manner.

The engine is a four-cylinder Continental N, having a bore of 3½ in. and a stroke of 5⅛. It is of the L-head type with enclosed valves on the right. A three-point suspension is employed. Two arms cast integral with the flywheel housing form two rigid points of support, these being set on hangers or brackets riveted to the side rails of the frame. Bolts pass vertically through both. The front end is flexibly mounted in a pivot form of bracket or support and by displacing two bolts at each support the engine can be freed from the frame.

Short Fuel Leads

The fuel is supplied from a 20-gal. tank under the driver's seat to a Stewart vacuum tank mounted on the dash in close proximity to the engine, so that the fuel leads are short. The carbure-



Showing the New Spring Suspension, in Which a Double Factor of Safety is Provided by the Main and Second Leaves

The Coal Question and the Motor Truck

One of the biggest problems in connection with solving the coal question is transportation to the retail dealer and delivery to the consumer.

With motor trucks, the retail coal dealer can deliver more coal, distribute over a wider area, and at a lower delivery cost per ton.

The use of motor trucks for coal deliveries means increased profit for the dealer and better service for the consumer. They can and are doing heroic service in helping to solve the question of the winter's coal.

In selecting motor trucks for coal deliveries or for any other heavy service, the wise buyer will demand the sturdiest possible construction all the way through, and he will pay particular attention to the steering gear.

If he finds that the truck is equipped with a Ross Steering Gear, he knows that the enormous bearing surface in Ross design, together with Ross quality in materials and workmanship, guarantee safety, reliability and easy operation.

He has greater assurance, also, of the merit of the rest of the truck, as it is reasonable to suppose that the manufacturer who uses Ross Gears has given the same careful consideration to every detail in the construction of his truck.

Ross Steering Gears are now used as standard equipment on 115 different motor trucks, representing considerably over half the industry. Write for catalog and further information.

Retail Coal Dealers—
Use Motor Trucks

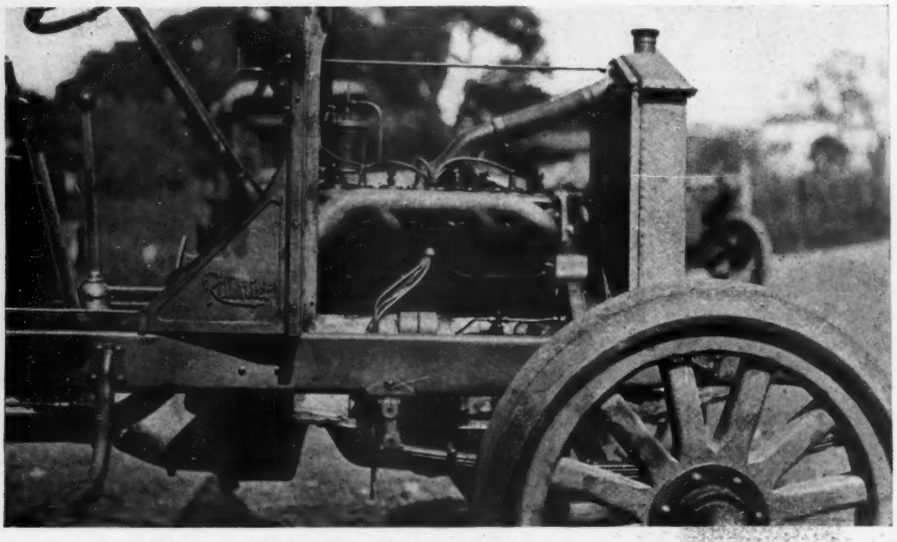
Consumers—
Buy Your Coal Now

Each One Must Do His Part

ROSS GEARS

The Steering Gears that PREDOMINATE on Motor Trucks

ROSS GEAR & TOOL COMPANY, 760 Heath St., Lafayette, Ind.



Exhaust Side of Rainier Engine and New Design of Radiator

tor is a Zenith and is equipped with the usual means for supplying heated air. Control of the air is located on the dash convenient to the driver. A Monarch governor is used on this model.

Ignition is by a Simms variable spark magneto shaft driven through a flexible coupling. Dash control is employed. Cooling is by the thermo-syphon principle, the inlet and outlet pipes being of adequate size. The radiator is a special Harrison honeycomb type, so mounted as to prevent shocks being communicated to it, and the fan is a four-bladed, adjustable airplane type. Provision is made for completely draining the water from the radiator and waterjackets, a drain cock being located in the inlet water pipe, well below the bottom of the radiator.

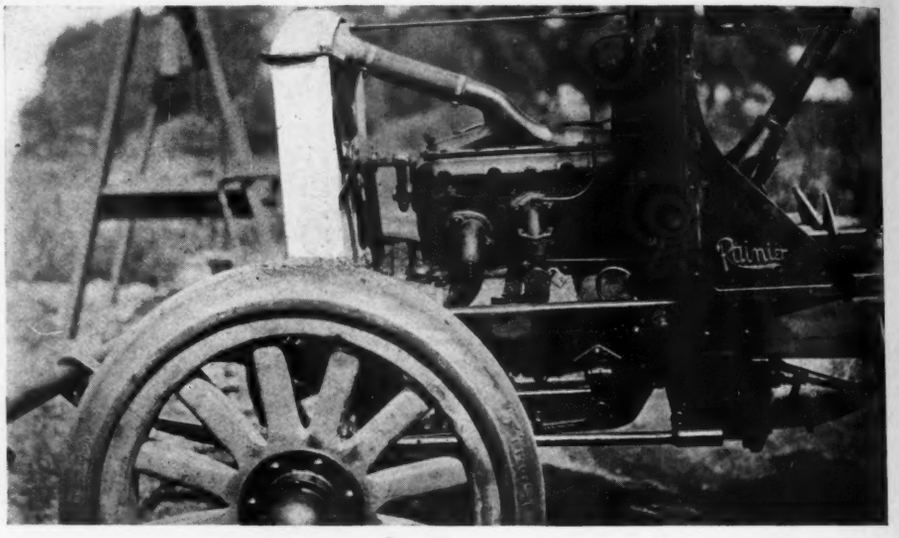
Straight-Line Drive

The clutch, a Brown-Lipe dry type, of multiple disc, with the Brown-Lipe gearset, is a unit with the engine. The gearset is the conventional three speeds forward and reverse, selective type and affords the following ratios: First, 3.33 to 1; second, 1.68 to 1; reverse, 4.35 to 1. The final ratio is 8.5 to 1.

Hartford universal joints and propeller shaft are employed, the former being over size and the shaft tubular, 2½ in. in diameter. An extra heavy Wisconsin overhead type of worm driven rear axle is employed with a Brown-Lipe make of differential. The worm wheel and differential are mounted as a unit in a one-piece casting forming the case cover. Both are readily accessible. Axle housing is extra heavy, also the drive shafts. The drive is practically a straight line.

The service brakes are pedal operated, of the external contracting type, while the emergency are internal expanding. Both are lined with Multibestos lining and are 2½ in. wide. Emergency lever and rocking type of speed change lever are mounted on the gearset housings.

The frame is a Parrish & Bingham, of pressed steel construction, 4⅝-in. section, 3-16 in. thick. It is narrowed at front, affording a short turning radius, and the front ends are bent to form the spring hanger, which carries a bracket for supporting the tubular bumper, which is standard equipment. There are three cross frame members, and the rear is gusseted. All are hot riveted.



Front End of Rainier Chassis. It is Powered by a Continental N, 3½ x 5⅛ Inch Engine

Other Specifications

The front springs are semi-elliptic Perfections, 38 in. long, 2¼ in. wide, and the nine leaves are well clipped. The rear are 49½ in. from center to center, have 12 leaves and are 2½ in. wide. Nickel steel spring clips are used throughout, and all eyes are bushed with bronze grease-retaining cages.

The front axle is the conventional I-beam section type, with 2¾-in. sections and extra heavy nickel steel steering knuckles. Timken roller bearings are employed. The steering gear is a Lavine split nut type, and the column is surmounted by an 18-in. wheel. The driver is placed at the left with center control. The usual accelerator is provided, it being located between the clutch and brake pedals, and control of the carburetor is provided on the steering column. Provision is made for lubricating the parts subject to friction by the usual grease cups.

Second growth high-grade hickory wheels are equipped with Firestone solid tires, 32 x 4 in. front and 34 x 4½ in. rear. The wheelbase is 133 in., and the loading space back of the driver's seat is 9 ft. 6 in., but it is stated that some types of bodies will permit of a space of 10 ft. The standard equipment includes front fenders, of a substantial design, running boards, mud splashers, three oil lamps, bumper, Long horn, jack and tools. A windshield is supplied for $20 extra. Electric lighting and starting are supplied upon order, the engine design favoring the flywheel type of starter, while the generator can be installed to be shaft driven.

The Rainier Motor Corp. has been subjecting the model R6 to severe tests, and the new design has proven very satisfactory in every respect and particularly from a fuel economy standpoint. It is anticipated that deliveries will begin this month.

Deferred Classification in Trucking Business

According to a statement recently issued by the War Department, concerns engaged in the transportation business within cities and along the public highways of necessary commodities, may claim deferred classification for their necessary employees under the provision of the recent act of Congress referring to "persons engaged in industries, occupations or employments, including agriculture, found to be necessary to the maintenance of military establishment, or the effective operation of the military forces, or the maintenance of national interest during the emergency."

In such cases, as in all others where claim for deferred classification is made on this ground, evidence must be submitted to the district board to show, first, that the particular concern making the claim is "necessary to the maintenance of the military establishment, or the effective operation of the military forces, or the maintenance of national interest during the emergency, and, second, that the individual for whom the claim is made is a necessary employee of that concern."

Guaranteed
For Life of Truck

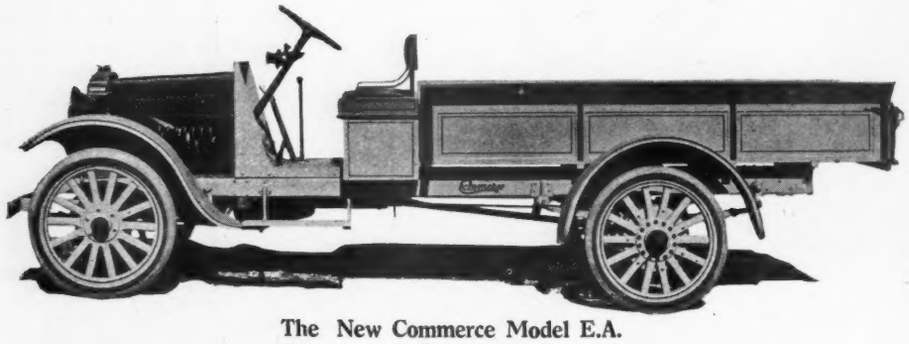
Smith Wheels
"Everlasting"

Save more than their
Original Cost
in Tires and Gasoline
each year they are run

Demand Smith Wheels

Commerce Model E for 1918

THE features of this new model are the heavy truck-type transmission, in unit with the engine, it having gears 7/8 in. face, 6-8 hitch, and ball bearing shafts throughout; and the Bijur electric system, incorporating the Dixie magneto, Bijur electric generator and starting motor. A Continental engine is used, bore 3¾ in., stroke 5 in., developing 23 hp. at 1000 r.p.m. and 38 hp. at 2200 r.p.m. The crankshaft in this model has 3 bearings. The chassis alone sells at $1450 f.o.b. Detroit. The principal units entering into its construction are the Torbensen internal-gear rear axle, the cast tank radiator, the heavy duty front axle, Stewart vacuum system, unit power plant, Pierce automatic governor and the springs manufactured by the Detroit Metal Products Co. These, together with a special truck frame and fittings, such as are usually found in a truck of greater capacity, are the principal units.



The New Commerce Model E.A.

The bumper is constructed as an integral part of the frame construction, adding to the strength, safety and appearance of the truck. The searchlights are extra large and fitted with dimmer lamps. The driver's spot light is conveniently mounted on a swivel at the windshield. The finish of the chassis is the standard orange color with black striping, the bodies in Commerce dark green. Instruments are conveniently mounted on the metal covered dash. An unusual amount of room is provided in the driver's seat. Oil cups are provided for the lubrication of nearly all the chassis parts in place of the grease cups.

The 1918 Commerce is known as the model E. A.

The bodies furnished with this model E chassis are 3 in number. The model A is the standard flareboard express as illustrated, and its dimensions are 9 ft. 2 in. long, 44 in. wide, and 12 in. deep. The model H body is a combination standard express type with 4-post top and storm curtains, and has the same dimensions as the model A, the height being 56½ in. under the top. The model S body is the New York type stake body with a loading space 60 ft. wide and 120 in. long. The price of the model E chassis includes complete equipment—storage battery, horn, tools, fenders with covered and aluminum bound running board. Allowance of $20 can be had for the car without the starting motor, the car to be equipped with generator, battery and lamp. The allowance for the complete starting and lighting system, but to include magneto ignition, is $40. This chassis can be supplied with pneumatic tires, if desired. Firestone, including extra rim and tire pump, 34 x 4½ in. front, and 25 x 5 in. rear are $70 extra. A combination of front pneumatic and rear solid tires can be furnished at an extra cost of $32.

The screens for side and rear screen doors for the E. H. model are furnished for $54 extra. The driver's top, four post top, including the driver's seat and storm curtains, are supplied at an extra cost of $54.

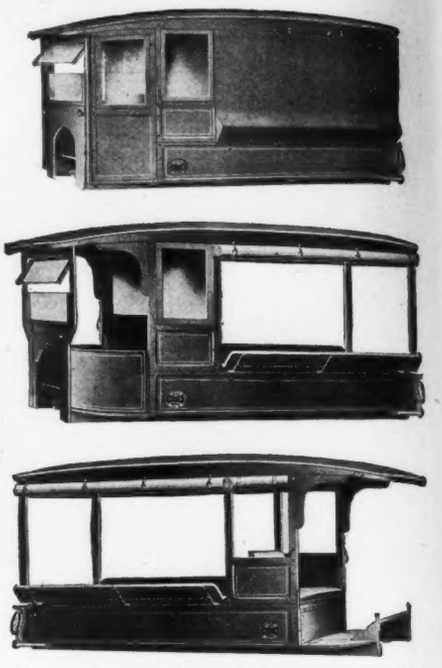
General Specifications

Engine, transmission and clutch are mounted in unit. The clutch is cone type, 14 in. diam. The final drive from the unit power plant is transmitted by a tubular propeller shaft of nickel steel, provided with 2 universal joints, to the Torbensen internal-gear rear axle. The gear ratio is 7:1. The front axle is truck type I-beam, equipped with roller bearings. The springs are guaranteed two years, against settling or breaking. They are made of silico manganese, the front 36 x 2¼ in., the rear 50 x 3 in., bronze bushed. The carburetor is a Zenith Model O-4 equipped with hot air supply pipe. Gasoline is supplied to it by the Stewart vacuum feed mounted on the engine. The tank has a capacity of 15 gal. and is round, welded steel type. Service brakes are external contracting on rear wheel drums, these being 16 x 2½ in. Emergency brakes are internal expanding 15½ x 2 in. The standard wheelbase is 126 in. with tread standard. Steering gear is the worm and split nut type, and the steering wheel is 18 in. in diam.

H. E. Wilcox Motor Co., Minneapolis, Minn., is now making a 2½-ton truck in place of the 2-ton model formerly manufactured. The company now makes trucks of 1-, 1½-, 2½-, 3½- and 5-ton capacity.

Martin "All-Season" Commercial Body Line

An innovation in the form of a line of convertible, all-season bodies for commercial cars, that can be partly or wholly enclosed, as desired, has just been announced by the Martin Truck & Body Corp., of York, Pa. One of the features of this new body is that the purchaser of a truck or truck unit can order a standard body from the Martin catalog and receive the same promptly, regardless of whether it is for a Ford truck, truck unit or 2-ton chassis. The Martin company states it is prepared to make shipments



Three Bodies of the Martin Line of All-Season Convertible Commercial Car Bodies

of any standard body shown in the book promptly upon receipt of the order.

Another feature is the fact that an open express body can be ordered and, as the season progresses, the additional parts purchased necessary to enclose the body for winter or rough weather of any kind. The parts and equipment of this new line are standard size and interchangeable, and, in case of accident with damage to any parts, they can be quickly replaced.

These bodies do not require a skilled mechanic to set them up. Screws, bolts and all necessary irons or braces are furnished, and the holes are drilled, bored and counter-sunk, ready for attaching when the enclosure is received.

Australian Libraries Want Trade Literature

Copies of magazines and trade catalogues, including those relating to automobiles, trucks and accessories, are desired by W. H. Ifould, librarian of the public library at Sydney, Australia, and by the librarian of the Canterbury Public Library, at Christchurch, New Zealand.

"566 miles over terrible roads on 70 gallons of gas"

Have you bought your Fourth Liberty Bond?

Atterbury dealers—undaunted by railroad embargoes—despite the worst road conditions in years—are daily bringing home their quota of Atterburys.

The trip of 566 miles from Buffalo to Philadelphia, over roads that defy description, was easy for the big Atterbury truck pictured above. Incidentally, the journey was made on 70 gallons of gas.

It is the trouble-proof simplicity of the Atterbury, plus well-nigh perfect construction, that makes such performance possible—makes for solid friendship between Atterbury owners and Atterbury dealers.

If the Atterbury is not already represented in your territory, it will pay you to investigate.

ATTERBURY MOTOR CAR CO.
BUFFALO, N. Y.

MOTOR TRUCKS OF MAXIMUM SERVICE

ATTERBURY

The Texas Semi-Trailer Style 1000-A

Popular among the Texas trailer line is style No. 1000-A, the semi-trailer illustrated herewith. It is equipped with solid tires, and 1¼-in. Concord axles, with Sheldon ball bearings. The tires are Swinehart make, solid rubber, size 28 x 2 in., the wheels upon which they are mounted being artillery type, with 1¼-in. spokes and 1½-in. tread.

The body dimensions are 44 in. wide, 72 in. long and 17 in. high. The sides are removable, enabling the hauling of bulky materials. The semi-elliptic springs are 44 x 1¾. The capacity of this trailer is 1000 lb., and it weighs 470 lb. The drawbar has double coil springs for absorbing push and pull shocks. The finish is black or Brewster green.

The floor, sides and sills are of hardwood, heavily ironed. This trailer is made by the Texas Wagon Works, of Crawford & Commerce Sts., Houston, Texas.

Texas Trailer No. 1000-A

This semi-trailer of the Texas line is equipped with ball-bearing axles.

Denby Adds Five-Tonner

The Denby Motor Truck Co., of Detroit, Mich., make announcement of the production of their new Model 210 five tonner. This company has been producing trucks of high grade for several years and this additional model promises to live up to the high standard set for it by the successful performance of the other models of this company's building.

The specifications are given as follows: Capacity, 10,000 lb.; regular body size, 13 ft. long by 6 ft. wide; wheelbase, 170 in.; turning radius, 31 ft.; road clearance, 14 in.; speed, 10 m.p.h.; engine, 4-cylinder, cast in pairs, three point suspension, 4½-in. bore by 5½-in. stroke; crankshaft of special alloy steel, 90,000 lb. per sq. in. tensile strength; brake hp., 50; S. A. E. rating, 32.4; maximum motor speed, 1050 r.p.m.; Simplex motor control governor; 1¼-in. carburetor; Eisemann ignition; water cooling system, circulated by centrifugal pump; plunger pump, lubricating system, driven from camshaft, distributing oil to timing gears and over main bearings; other parts lubricated by splash from the connecting rods; 18 disk, dry plate clutch, faced with Raybestos; selective type transmission, four speeds forward, one reverse, suspended at three points. Rear axle, internal gear, dead axle, rectangular, 2¾ in. wide and 4 in. deep, with integral spindles of 3 9-16 in. diameter. Gear ratio, 12½ to 1. Internal expanding brakes on rear wheels, 29½-in. drums. Front axle, I-beam, drop forged, Timken wheel and pivot bearings. Springs, front, 42 x 3 in.; rear, 54 x 4 in. Cast steel wheels, disk type; Firestone solid pressed-on tires; steering gear mounted on left hand side, gear shift and hand brake levers in center. Foot accelerator for throttle, also hand control on steering wheel for throttle and spark advance. Equipment includes oil headlights, hand horn, tail light with wind guard, rear license holder, radiator guard and tools, jack, etc.

The E. & W. Worm-Drive Attachment

The E. & W. Mfg. Co., of 319 Oregon St., Milwaukee, Wis., is manufacturing the E & W. Three In One 2-ton worm drive attachment, built in universal size to fit any make of car, the illustration showing the special size built to fit the Dodge Brothers chassis. Special attention is called to the straight one-piece frame, that runs up as far as the cowl on this Dodge chassis, allowing the Dodge Brothers frame to telescope the E. & W. frame 45 in., giving exceptional strength where needed. This frame is 5 in. deep and 34 in. wide throughout its entire length.

With this truck unit is furnished a one-piece shaft with the front end machined, ready to slip into the front universal. Brake equalizers are furnished also, as shown. The springs are 46 x 3 in., of Garden City make, bronze bushed. The spring hangers, spring shackles, and in fact, all castings are made of steel. Wheels and tires are 34 x 4 in., standard equipment.

The axle is a standard worm drive axle of 2-ton capacity. The clearance of this is 10½ in. from the lowest point.

On the special Dodge attachment, this concern can furnish a wheelbase of 140 in. and on the universal attachment it is possible to secure any wheelbase up to 180 in. since this concern will furnish a short propeller shaft with double universal joints, suspended from the center of the frame by an adjustable Hyatt roller bearing hanger with front companion flanges into which is fitted the shaft of the car to be assembled.

The price of the E. & W. 2-ton worm drive attachment is $710 including the body and the cab. This concern is in position to make immediate delivery.

The E. & W. Truck Attachment

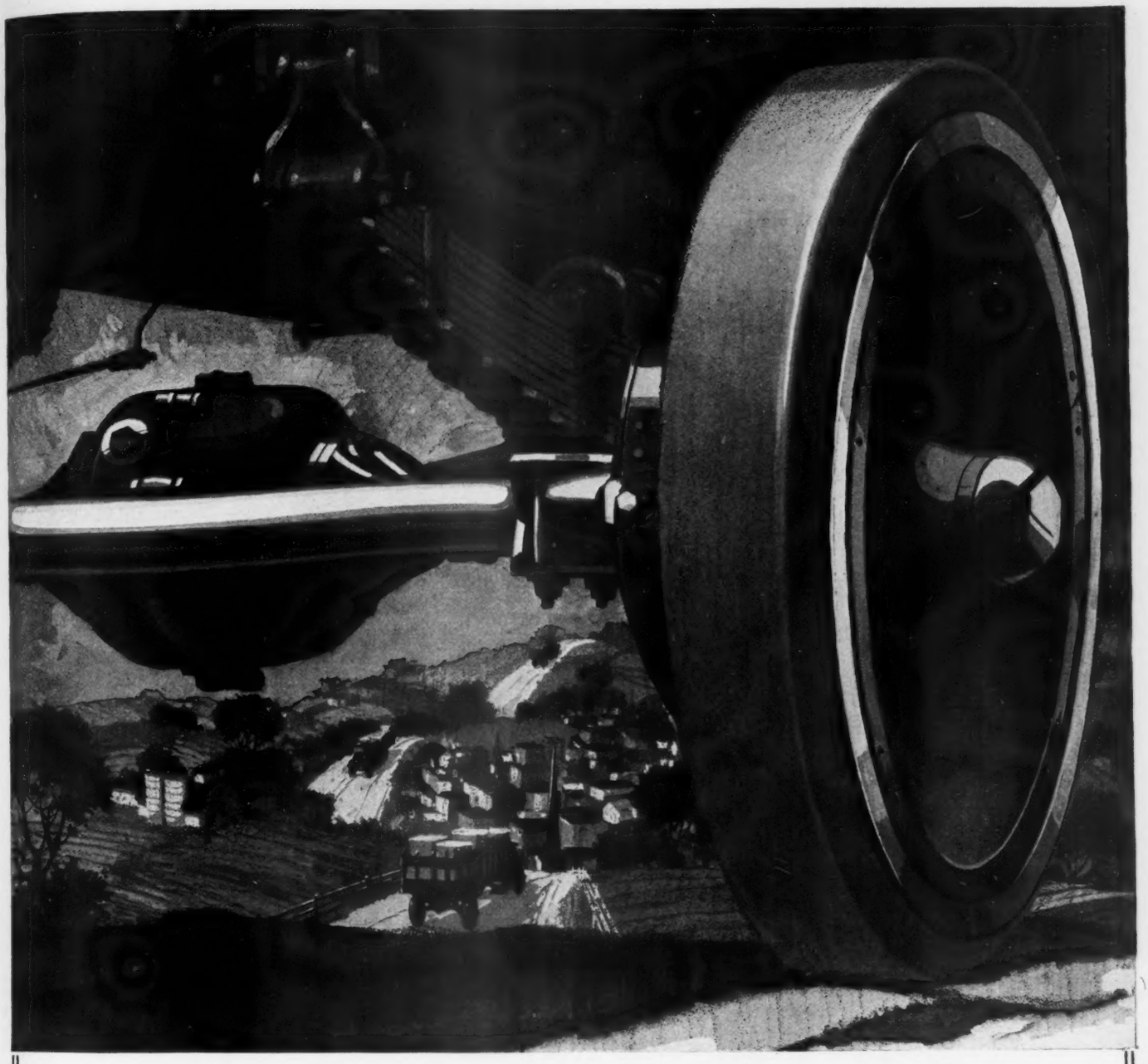
This illustration shows the E. & W. three-in-one, two-ton worm-drive attachment as attached to a Dodge chassis.

Meridian Regulates Truck Loading

The city of Meridian, Wis., has recently passed an ordinance regulating the weight and length of truck loads that may be hauled over the city streets. No load over 9800 lb. may be carried, and the wheel diameter must not exceed 42 inches.

Northern Foundry Co., Marinette, Wis., organized recently to manufacture automotive and agricultural castings, is preparing to double the size of its plant by taking over adjoining buildings. A great part of the output of this company is being taken under contract by the J. I. Case T. M. Co., of Racine, Wis.

Stromberg Carburetor Co. of America, Inc., Chicago, Ill., has declared an extra dividend of 25 cents a share in addition to the usual quarterly dividend of 75 cents a share.



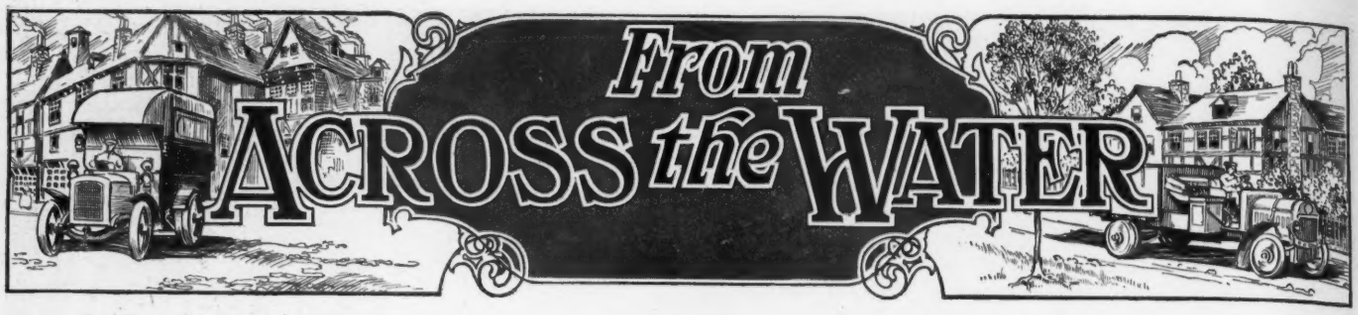
Clark Internal-Gear Axles are helping motor trucks solve the transportation problem.

Clark Electric Steel Disc Wheels are substantial and sturdy.

CLARK
Rear Axles · Steel Wheels · Locking Differentials
For Motor Trucks
EQUIPMENT

Clark Equipment is found only on good motor trucks

CLARK EQUIPMENT COMPANY
BUCHANAN — MICHIGAN



Some British Omnibus Working Costs

By OUR LONDON CORRESPONDENT

THE accounts for the year ending March 31, last, of the motor omnibuses worked by the Walsall Tramways, in England, are now available, and, while they show a big increase in expenditure, they also show a more than increase of receipts, and what is more to the point, an increase in net profits. Looked at as a whole they show a net profit of over $30,000 on a total mileage of 315,880. The receipts totaled some $118,557. This is due to an increase of 8 cents a mile on the previous year. We give the details below. The English amounts were worked out to three decimal places, consequently it is hard to get an absolutely accurate rendition of cost per mile, but we have brought it to as great a degree of accuracy as possible.

To show the general trend of increased cost all around, we also give the comparative figures for the year 1916-17.

Tariff Expenses

Including wages of drivers and conductors, cleaning and oiling of busses, depot expenses, ticket checks including royalties and wages of inspectors and clerks, uniforms and badges and miscellaneous, for the last year were .01863 cents per mile, compared with .01619 cents per mile in 1916-17.

General Expenses

Including salaries of general officers and staff, head office upkeep, store expenses, rents, rates and taxes, printing and stationery, law charges, accident insurance and compensation, fire and other insurance, buildings and fixtures and miscellaneous, amounted to .00562 cents per mile as compared with .005175 cents per mile in 1916-17.

General Repairs and Maintenance

Including chassis, gearing and transmission, engines and dynamos, bodies, wheels and tires, workshop tools and sundry plant, buildings and fixtures, and miscellaneous, figured out at .017076 cents per mile compared with .01363 cents per mile in 1916-17.

Road maintenance cost the company .001675 cents per mile as compared with .00174 cents per mile in 1916-17. Power expenses, which include gasoline, etc., showed an increase. The figures for last year were .02157 cents per mile as compared with .016215 expended in 1916-17.

The total amount of working expense is given at .064575 per mile for 1917-18, while the figures for 1916-17 show a total of .05295, or an increase in operating expense of .011625 per mile over that of the previous year.

The total traffic revenue, Manchester results, per mile shows a total of .089895 for this year, while .070005 was the revenue derived last year, or an increase in revenue in favor of this year of .01989.

The motor busses operated by the Manchester Corp. during the same period ran 216,818 miles, and here too, costs have increased materially, though the traffic revenue has increased to a greater extent; consequently a balance of almost $8000 was carried forward as net profit. The total traffic revenue was $60,637. The figures in this case are as follows, with figures for the previous year given in comparison:

Tariff Expenses

Including superintendence and other traffic wages, wages of drivers and guards, bonuses and sick pay, cleaning and oiling of busses, depot expenses, ticket check, uniforms and licenses and sundries amounted to .01032 cents per mile, in comparison with .018335 expended for the same purpose the year of 1916-17.

General Expenses

Including administration salaries and wages, rates on depots, printing and stationery, fuel, light and water, compensation and insurances, figured at .00183 cents per mile, as compared with .00180 cents per mile in 1916-17.

Repairs and Maintenance

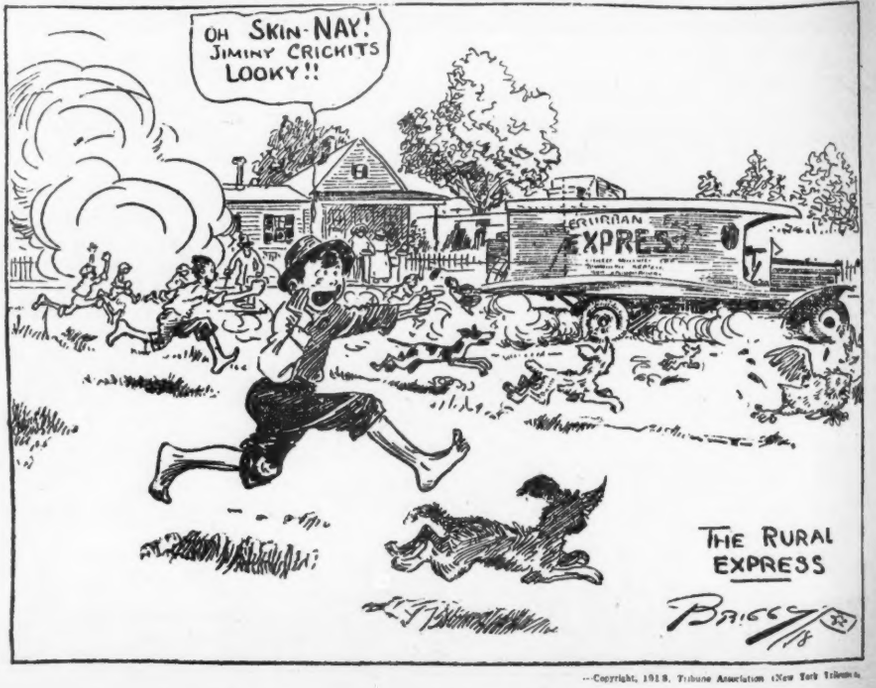
Including tires, chassis, bodies, buildings and machinery, cost the company .00981 cents per mile during the last year, while in 1916-17 it cost them .00602 cents per mile.

Power expenses, including gasoline, etc., figured out at .01676 cents per mile as compared with .014065 cents per mile the previous year.

Total working expenses were .04782 cents per mile for 1917-18, while they were .04022 cents per mile in 1916-17, or an increase of .00760 cents per mile.

Total traffic revenue was .06712 cents per mile for last year, while the revenue

The Days of Real Sport BY BRIGGS



—Copyright, 1918, Tribune Association (New York Tribune).

320,000,000 ACRES OF FOOD—*Corn*, 3,000,000,000 bushels; *Wheat*, 1,000,000,000 bushels; *Oats*, 1,500,000,000 bushels; *Rye*, 50,000,000 bushels; *Garden Produce*, Millions of Tons—This is the crop estimate of Uncle Sam for the current year!

CROPS, crops for the Allies, crops to feed our millions! *They* must be fed—*we* must be fed!

CROPS must be harvested on time. Crops must be moved on time. Railroads are carrying their maximum load.

MOTOR TRUCKS, like a mighty giant, today take up this tremendous burden.

TIME is a big factor.

DEPENDABLE TIRES for trucks are a vital necessity. Fisk Tires *are* dependable—security against interrupted service.

WHEN you need Solid Tires--buy Fisk.

"There is now a Fisk Tire for every motor vehicle that rolls."

FISK SOLID TIRES

To Tire Dealers: Write at once to The Fisk Rubber Company of N. Y., Chicopee Falls, Mass.,

for the year preceding was .048335 cents per mile, showing an increase in favor of 1917-18 of .018785 cents per mile.

In addition to the working expenses depreciation adds a charge of .006925 cents per mile, and war bonuses .003725 cents per mile, leaving a balance at the rate of .00865 cents per mile, which yields the profit mentioned.

Work in Sheffield

The Sheffield Corp. employs 24 busses, 3 tower wagons and 7 motor lorries and vans. During the year their receipts amounted to about $234,957 on a mileage of 642,200. Here are the figures:

Tariff Expenses

Including superintendence, wages of drivers and conductors, wages of other traffic employees, cleaning and oiling busses, depot expenses, ticket check, uniforms and badges, omnibus licenses, loading barriers, motor bus signs and miscellaneous, amounted to .024655 cents per mile as compared with .018445 cents per mile for 1916-17.

General Expenses

Including salaries of general officers and staff, head office upkeep, store expenses, rent, rates and taxes, printing, stationery and advertising, fire insurance, insurance fund—proportion transferred to meet third party claims, workman's compensation fund, employer's contribution to national insurance and miscellaneous, were .00190 cents per mile for this last year, as compared with .00159 in 1916-17.

Repair Expense

Including chassis, bodies, wheels and tires, workshop tools and sundry plant, buildings and fixtures and miscellaneous, amounted to .02205 cents per mile for last year as compared with .01637 for the year previous.

Road maintenance amounted to .00073 for 1917-18, as compared with .000655 for 1916-17.

Power expense which includes gasoline, etc., amounted to .02077 cents per mile, while the expense for this account amounted to .017145 for 1916-17.

War allowances figured out at .000625 cents per mile while in the year previous they were .000855 cents per mile.

The total working expenses were .070735 for the year 1917-18, while in the year 1916-17 they amounted to .050065, or an increase of this year, 1917-18, over the year previous, 1916-17, of .020670.

Total traffic revenue amounted to .08959 compared with a total of .061575, showing an increase of .028015 in favor of 1917-18.

The total net profit per mile was .01886 as compared with .01651 in 1916-17, or an increase of .00235 cents per mile during the year 1917-18.

These results may be regarded as very good, owing to the very hilly nature of the roads in and around Sheffield.

Fuel Conservation is Object of New Campaign

By C. P. SHATTUCK

THE Highways Transport Committee has launched a nation-wide campaign to conserve gasoline and lubricating oils, and the first of a series of "affiziation" weeks was inaugurated in New York and Connecticut, or region No. 2, according to the division of the States by the new organization plan of the committee. The campaign will be under the direction of the States' committees.

The word "affiziation" means putting into effect of efficiency just as conservation is the putting into effect of conserving. It indicates the applying of efficiency to the use of gasoline as a fuel with particular reference to those who are operating internal combustion engines inefficiently. It is hoped that the campaign will so conserve fuel that arbitrary rationing or curtailment will not be essential.

Why Economy is Necessary

There are some who, after reading the reports of crude oil production, cannot understand why economy must be practiced. They do not take into consideration the fact that this country is supplying England, France, Italy and the allies with the greater portion of the gasoline and oil used by these countries, to say nothing of the enormous quantities of fuel oil. Add to this the vast amount of gasoline and oil required to maintain our motor transports, airplanes, navy and other apparatus utilizing fuel, crude or refined, it is obvious that our resources are heavily taxed. And the demand is to increase as the number of airplanes, trucks, ambulances, etc., in our service increase.

The "affiziation" movement is more far-reaching than the usual appeal. In addition to a mammoth campaign of publicity by the dailies, trade papers, etc., automobile, chauffeur and trade associations and engineering societies will preach and practice "affiziation." The propaganda embodies these points:

How Fuel and Oil Can be Saved

Fuel tanks and system should be made tight to avoid possibility of leakage.

Carburetors should be adjusted to obtain the highest possible mileage. Where they have an air adjustment controlled with the driver in his seat, he should use as much air and as little fuel as will permit the engine to function properly.

Keep cylinders free from carbon and avoid loss of compression through improperly seated valves, leaky rings or scored cylinders.

Do NOT run the engine idle.

Avoid dragging brakes.

Keep spark plugs clean, gaps properly adjusted, and see that contact points of magneto are clean and have proper break.

See that all oil leads are tight and that oil does not drip or escape from crankcase or reservoir.

When pneumatic tires are used see that they are properly inflated.

This propaganda is to be mailed whenever possible by associations, and the traffic police and all police in general are to be supplied copies and instruct drivers who pass them or whom they pass to observe the above suggestions. It is proposed that everybody be encouraged to admonish operators who violate these principles.

Educating the Public

The first week will be "affiziation" week, and the second will be commercial car week, when a drive to teach economy of tires as well as fuel and oil will be made. The third and fourth weeks will be devoted to a campaign for conserving labor and spare parts.

The campaign is not to be limited to the cities, but the propaganda is to be spread by the county organizations of the Highways Transport Committees of the States. It is believed that the drive will be so successful that rationing or curtailment will be avoided.

Gasoline Makers and Dealers Must Procure Licenses

According to a proclamation issued by President Wilson, all importers, manufacturers, distributors and transporters of crude oil, fuel oil, gas oil, kerosene or gasoline, whose yearly business exceeds $100,000, must operate under a license.

The proclamation was issued by the President under the authority of the Congressional Act, "to provide further for the national defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel."

Licenses may be secured upon application to the United States Fuel Administration, Oil Division, Washington, D. C. Holders of existing licenses already issued by the Fuel Administration are not required to secure new licenses. The order became effective October 1.

Front End Drives—Morse Chain Co., Ithaca, N. Y. A 24-page booklet. In addition to giving the information which its title indicates relative to the driving of camshafts, magnetos, lighting system generators, pumps, etc., this booklet contains a number of data tables and charts. It should be of interest to all manufacturers of engines, trucks and tractors and will be sent free to any one requesting it.

"There are two ways of winning this war"—

"One way is to make every possible effort to do it now, and the other is to proceed somewhat more leisurely and do it later. The obvious advantage from every standpoint, social, military, industrial and economic, is to put forth every effort in this country and win the war as soon as possible" —SECRETARY BAKER

Two, three, four more years of conflict will mean the curtailing of all American industries not absolutely essential to winning the war, a constantly increasing burden of taxation of which American business must bear its share, ever-mounting costs of material and labor—in short, a veritable struggle for economic existence. Whatever it costs, we are ready to meet it. But there is only one intelligent thing for the American business man to do, and that is, strain every nerve to end this war victoriously as soon as possible.

And you can do your part—a big part—by investing in Liberty Bonds to the very limit of your available resources.

Buy Liberty Bonds to Your Utmost—and Win the War Quickly

Space donated to the Winning of the War, by
CONTINENTAL GUARANTY CORPORATION
248 Madison Ave., N. Y. City

LIBERTY LOAN COMMITTEE
Second Federal Reserve District
120 BROADWAY, NEW YORK CITY

Trailer of New Type Straddles Car Frame

A quick-detachable 2-wheel trailer, novel in construction, due to the fact that it straddles the rear end of the car frame with which it is used, has been brought out by the Straddler Trailer Co., 1408 Mt. Vernon St., Philadelphia. This device is a 1-ton trailer for passenger-car chassis and will increase the load capacity without lengthening the wheelbase or altering the car chassis in any way. It is simply constructed, strong, and occupies but little space, attached or detached. It straddles the rear end of the car which draws it.

The features of this type of vehicle are the broad, short body, which makes unloading easier, and the short wheelbase of the outfit, which enables it to back around into close quarters. It is attached to the car by means of a spring coupling, which both balances the load and enables the car to pull the straddler trailer, and at the same time gives ample play for any unevenness of the road.

The Broad, Short Body Makes Unloading Easier

To insure that sufficient pressure be given to the rear end of the Ford chassis to provide traction for hauling a heavy load, springs are provided to transmit approximately 20 per cent of the load of the trailer to the rear end of the Ford chassis. Thus the heavier the load on the trailer the more pressure is applied to the Ford chassis, which in turn provides more traction.

The hubs of the trailer wheels are in exact line with the hubs of the wheels of the car, therefore they act in the same manner in turning corners and driving backwards. Each of the wheels of the trailer is supported by two very heavy semi-elliptic springs, the wheels being mounted between each pair of springs. The spring hangers are mounted on the cross members of the trailer.

The capacity of this trailer is rated at 2000 lb., but it can carry loads as heavy as 4000 lb. The weight of the trailer is 840 lb.

The extreme width overall is 90 in. The tread of the straddler trailer wheels is 76 in. The body is 4½ ft. long and up to 90 in wide. When it is desired to detach this trailer, the driver can release the same by pulling on a lever, and the trailer is dropped back to a slanting position, support being provided by an arm at the rear of the trailer.

The frame work of this trailer is of wood and gives the desired resiliency in frame construction. The price of the trailer is $265, and bodies range from $20 to $35, depending upon the type.

Velie Tests Kerosene-Burning Device

The Velie Motors Corp., of Moline, Ill., recently made an extensive kerosene burning test on one of their 3-ton military trucks, under direction of the U. S. Government. The object of the test was to prove out the practicability of using kerosene as a fuel for trucks, in connection with a new system of carburetion devised by Mr. Otto E. Szekely, engineer and manager of the Tractor Department.

The test consisted of a run from Moline, Ill., to Washington, D. C., with a 3-ton heavy aviator type signal corps truck, to which was attached a 3-ton trailer. Although the test was to be made with a 3-ton outfit, it happened that when it came time to run the test the Velie Co. did not have three-ton truck bodies on hand, so both the truck and trailer were equipped with five-ton bodies. The truck carried a load of approximately 3 tons, while the trailer had a load of 5600 lb. This truck has a model E Continental engine with a bore of 4½ in. and a stroke of 5½ in., being the L-head type with a splash system of lubrication. Mr. Szekely reports that the test was entirely successful and that the use of kerosene showed considerable saving over gasoline.

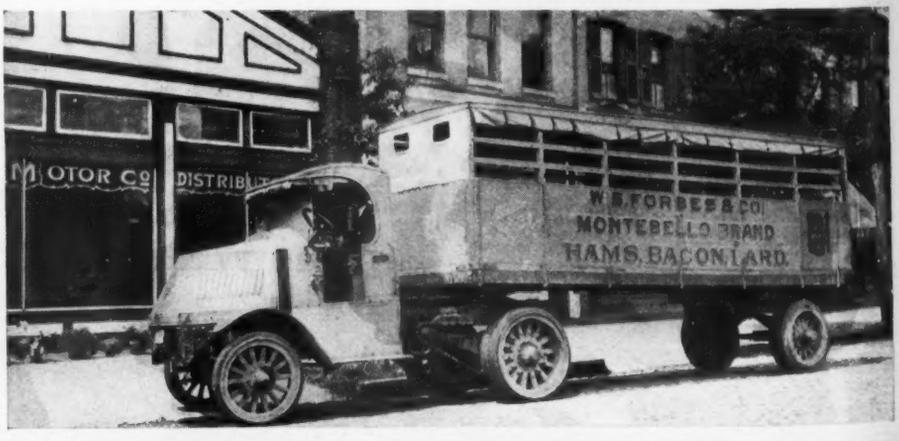
Trade Association Has School

Tri-City Automobile Trades Association, Davenport, Ia., is conducting an automobile school for employees of the automobile industry, operators and owners of cars. It is planned to give both theoretical and practical instruction. The course is being given to offset the shortage of skilled labor, and there is no charge for tuition.

Aluminum Castings Co., Cleveland, O., is enlarging its plant by the addition of three new buildings. One of these will be used as a core room. It will be 140 by 260 ft. Sand bins are also being erected, in a building 150 by 460 ft. Work is being completed on a third building, the dimensions of which are 120 by 260 ft.

Multiplying the Usefulness of a Truck With Giant Semi-Trailer

W. S. Forbes & Co., of Richmond, Va., are large packers of all kinds of fresh meats, and when this government got into the great war and began to sprinkle great camps of soldiers over the countryside the Forbes company found itself suddenly confronted with the necessity of delivering its products over a wide area. To accomplish this with the rapidity necessary in handling fresh meats, and in a region where railway transportation was not feasible, the Forbes Company purchased a 5-ton close coupled Mack chassis, and to this attached with a rocking fifth wheel a huge, specially built semi-trailer with half box and half slat sides, roofed over, and built in a very substantial manner. With this outfit the Forbes Company can handle fifteen tons of fresh meat products, and the truck and trailer are a familiar sight to the soldiers at Camp Lee, at Petersburg, and other military camps in the vicinity of Richmond. The Forbes Company has found this outfit very economical to run, and in fact does not know just how it would have filled its orders with the soldiers without the Mack and the trailer to deliver the goods.



Five-Ton Mack Truck and Giant Semi-Trailer That Handles Fifteen Tons of Meat at a Time for Richmond Packing Company, Delivering to Soldier Camps in Virginia

CONTRACTORS, whether they are engaged in the construction of subways or sky-scrapers, are coming to depend more and more on motor truck hauling.

Building contracts require such hauling facilities as can be positively depended upon. To meet demands, these big motor trucks are equipped with UNITED STATES SOLID TRUCK TIRES—tires that are especially built to withstand tremendous loads and strains.

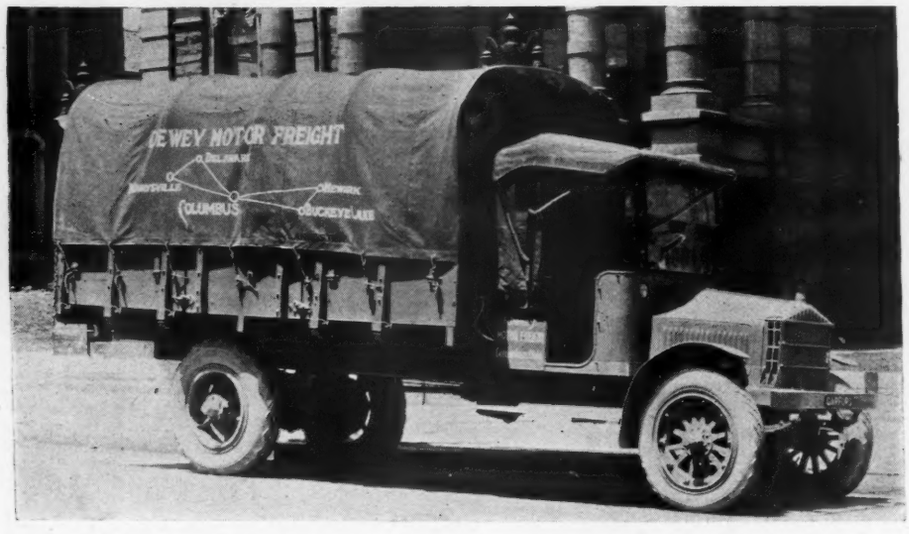
The most economical tires you can buy are those that will travel the greatest number of miles per dollar with the least possible chance for trouble.

UNITED STATES SOLID TRUCK TIRES are nationally recognized as standard for quality.

United States Tires
Are Good Tires

Rural Express Truck Should be Attractive

That the motor trucks used in rural express and inter-city hauling throughout the United States should be attractive enough in appearance that they would attract attention along the road is the theory advanced by J. F. Dewey, who runs several motor express routes out of Columbus, O. Mr. Dewey backs up his theory with one of the most striking looking outfits along the highways—a Garford truck with big pneumatic tires and fitted with a standard United States Army quartermaster's department body.



A Map of the Dewey Routes is Painted on the Tarpaulin Covering the Sides

On the sides of the tarpaulin covering the body is painted a map of the Dewey routes and "Dewey Motor Freight" in large letters. Mr. Dewey says that he has secured considerable business through merchants and others having noticed the big truck on its route, their interest being aroused to the point of inquiry and later the interest resulting in business. This big truck is now making daily round trips to Newark, thirty miles east of Columbus, and is doing a good business. Another of Mr. Dewey's trucks makes weekly trips to Springfield, 45 miles away, distributing through that territory the goods shipped there previously by rail by a Columbus baking concern. The truck distribution is quicker and more satisfactory in every way.

Highways Transport Committee to Adjust Highway Labor

Recognizing that the vital need for increasing transportation facilities of the country during the war may be realized only through the most effective utilization possible of the highways, the United States Employment Service has instructed its representatives to refer all labor problems arising in this connection to the Highways Transport Committee, Council of National Defense, to which committee all highways transport problems are being delegated.

The task thus delegated involves the adjustment of labor employed in any phase of transport activity, either power or horse drawn. In referring these duties to the Highways Transport Committee, J. B. Densmore, Director General, United States Employment Service, has transmitted the following letter to R. C. Hargreaves, Secretary of the Highways Transport Committee:

"Dear Sir:—

The U. S. Employment Service recognizes the war-time need for making the most effective and efficient utilization of our highways as a means of strengthening and increasing our transportation resources, and especially is acquainted with the valuable direction given by the Highways Transport Committees to this problem.

We are also convinced that tonnage capacity of our highways transport resources can be greatly increased by applying all possible vehicles, horses and labor in line with national policies promulgated by you and, naturally, in transportation that vitally aids in accomplishing our war programme.

We therefore desire to effect any adjustment of labor employed in any phase of highways transport activity, relating to either power or horse-drawn vehicles, in cooperation with your national organization, relying on your state Highways Transport Committees to furnish the facts regarding essential highways transport activity with which they are intimately familiar and on which our state and local labor department officers may base their necessary orders.

We are therefore transmitting instructions to our representatives, advising them that all matters touching or in any way affecting highways transport operations are to be dealt with on the advice of your organization."

Secretary Hargreaves states in connection with the above that the policy of the Highways Transport Committee will be to conserve and strengthen every element of highways transportation, and to so direct it as to serve those industries which vitally aid in accomplishing the war program, as indicated from time to time by the War Industries Board.

Return Loads Discussed by Philadelphia Motor Truck Association

At the first fall dinner and business meeting of the Motor Truck Association of Philadelphia, Pa., held as usual at the Hotel Adelphia, the chief feature was a discussion of the Return Loads Bureau as now being conducted by the Philadelphia Chamber of Commerce. Nearly 100 members were present. Urgent business at Washington prevented George Graham from attending. H. F. Leonard, general sales manager of the Atlantic Refining Co., of Philadelphia, explained the reason for gasless Sundays and the necessity of fuel conservation.

Republic Motor Truck Co., Alma, Mich., has recently appointed the following directors: James H. Foster, of the Hydraulic Pressed Steel Co., Cleveland; Robert L. Barr, A. Harris Ide, Attorney Henry J. Green, of Urbana, Ill., and Albert Rophart.

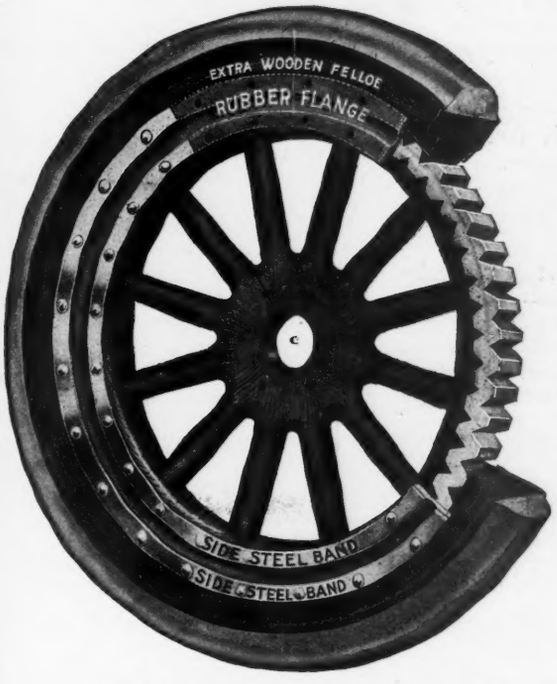
An involuntary petition in bankruptcy has been filed against the Hy-Watt Battery Co., of Cleveland, O.

A Two-Ton Model A Republic Truck, With a P-25 King Three and a Half Ton Pole Trailer

Mr. Ben Fillmore, of Shickshinny, Pa., owns and operates this outfit, and the illustration shows it carrying a load of seven hundred feet of mine props weighing approximately six tons

Sewell CUSHION Wheels

ARE ESSENTIAL FOR THE PROTECTION OF MOTOR TRUCKS AGAINST THE UNNECESSARY WEAR AND TEAR AND DEPRECIATION OF INVESTMENT DUE TO VIBRATION



There has never been a time in the history of the nation when Sewell Cushion Wheels were more in demand, or more needed, than during present conditions. Users of motor trucks have fallen in line with the Government's request to conserve in every way, and they are interested in any equipment the use of which will increase speed and range, save tires and lengthen the working life of their trucks.

Protect *Your* Motor Truck Investment with Sewell Wheels

Sewell Cushion Wheels are used and have been adopted as standard equipment by some of the most extensive operators of motor trucks in the country

A fleet of Pierce-Arrow dump trucks equipped with Sewell Cushion Wheels, operated by the Empire Limestone Company, Buffalo, N. Y. This well-known firm knows to a penny how much it costs to operate and maintain a truck equipped with rigid wheels and solid tires as compared with Sewell wheels and solid tires. They ordered their first set of Sewell wheels in November, 1915, and the repeat orders were based on the actual savings shown them.

Sewell Cushion Wheel Company

General Offices and Factory: Detroit, Michigan

Branches in the Following Cities:

Baltimore, 1125 Fidelity Building
Boston, 584 Commonwealth Avenue
Buffalo, 1028 Prudential Building
Chicago, 2010 Wabash Avenue
Cincinnati, 705 Providence Bank Building
Cleveland, 312 Citizens Building
Detroit, Mich., 1296-1300 Gratiot Avenue
Indianapolis, Ind., 318 East 28th Street
Jacksonville, Fla., 1827 Pearl Street
Kansas City, Mo., Traders Building
Los Angeles, 3908 La Salle Street
Louisville, Ky., Crescent Hotel
Minneapolis, 3336 Emerson Avenue, So.
Newark, N. J., 505 Wiss Building
New Orleans, La., 611 Julia Street
New York, 1790 Broadway
Philadelphia, 5507 Chancellor Street
Pittsburgh, 804 May Building
Rochester, 193 East Avenue
San Francisco, Cal., 1124 Polk Street
Seattle, 1052 East Thomas Street
Springfield, Mass., 426 Dwight Street
St. Louis, 1423 Locust Street

How Intelligent Truck Operating Saves Over Three Thousand Gallons of Gasoline per Week

Putting Motor Truck Drivers on Their Mettle Results in Big Conservation of Fuel. Get Nearly Ten Miles Per Gallon With Big 'Buses

By C. P. SHATTUCK

ONE of the first, if not the first, large companies operating a big fleet of commercial cars to inaugurate a successful fuel conservation campaign is the Fifth Avenue Coach Co., which operates 250 motor buses daily over Fifth avenue, North Broadway, Riverside Drive and several other leading streets in New York City. One of the interesting features of the plan is the saving of 3,334 gallons of fuel the first week inaugurated, and that without changing or adding to the equipment.

Human Element the Saving Factor

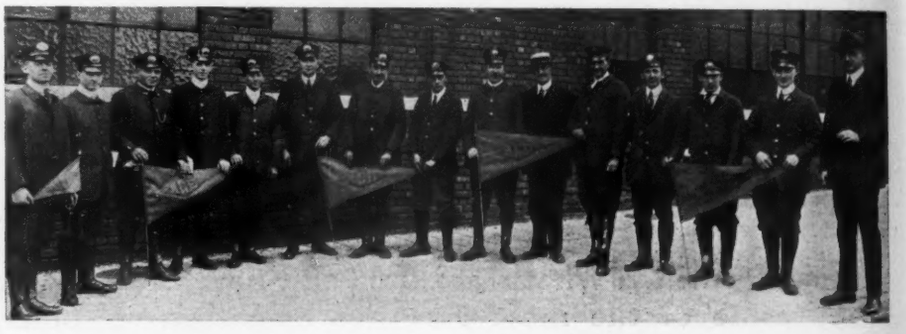
This notable fuel conservation, which is believed will mean a saving of nearly 200,000 gallons a year, is accomplished by patriotic rivalry among the drivers. The company is the originator of the plan, which provides for the awarding of ace and honor flags to the drivers obtaining the greatest mileage per gallon weekly. Every driver is eligible to the plan, which holds its interest for the competitors because a holder of the ace flag this week may be obliged to relinquish possession next week to another operator, who averages more miles per gallon than the holder of the coveted trophy. In this manner interest is maintained.

Inasmuch as each driver strives to improve the ace record, it is but natural that the sympathies of the shop men are enlisted. As a result drivers are more careful than formerly in making out their daily report of the car's condition mechanically, and hearty co-operation is being expected; in fact, almost demanded from the mechanics. Engines are kept tuned to the highest possible point of efficiency, as is every component of the chassis.

An accompanying chart graphically shows the average miles per gallon for a period of nine weeks, or since the plan was put into effect. The mean average temperatures are also indicated, and, as may be expected, the average mileage has fallen off slightly with a drop in temperature. The gain the second week is noticeable, slightly over half a mile the gallon.

Individual Averages Improve

The mileage figures of the ace men are considerably in excess of the average. Starting with approximately 6¼ m.p.g., they have risen steadily, until the winner was obliged to travel nearly 10 miles. Honor flags are given to the driver making the second best average weekly. There is an ace and honor flag for each class of bus at the three different garages, or a total of nine flags of each type. The ace flag is a green triangular pennant, in the center of which is a gold colored diamond bearing the word "Ace" in green letters. It is



Some of the Winners of the Ace Flag and Their Trophies. Possession Changes Frequently. President Ritchie is Shown at the Extreme Right

mounted on the top of the driver's cab. The honor flag is similar in shape to the Ace, but is half blue and half gold.

The increase in mileage is due to more efficient operation of the buses. Drivers take advantage of grades for coasting, utilize the enertia of the cars in approaching traffic controlled crossings where a stop is inevitable, and keep the mixture as lean as possible. There is no running the engine idle or racing it.

Possibilities of the Plan

The buses are of the double deck type, equipped with four-cylinder engines with 4 x 6-in. cylinders, and weigh loaded 16,000 lb. It is estimated that each car stops on the average of every 1-10 mile to leave off or take on passengers. The majority of the thoroughfares are hard asphalt. The average persons transported daily is between 100,000 and 160,000.

The example set by the Fifth Avenue Coach Co. should be followed by every large or small user of commercial cars. Even if it were necessary to give a bonus, which should not be offered in these days, when every patriotic citizen should

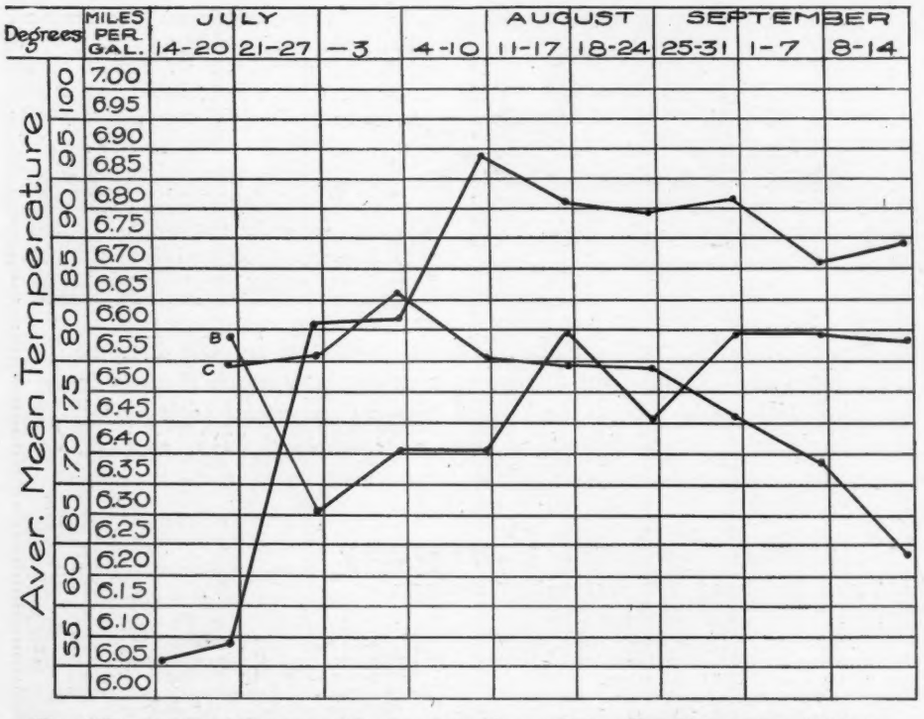


Chart Showing Fuel Conserved by Ace and Honor Plan. The Upper Line Indicates Gain Over Corresponding Period Last Year; or Lines B, C Show Average Mean Operating Temperatures During 1918

MASTER TRUCKS

The biggest thing we can say about Master Trucks—the one thing that ought to interest you—the dealer—who is looking for a profitable truck line—is that the slogan

Master of the Load On ANY Road

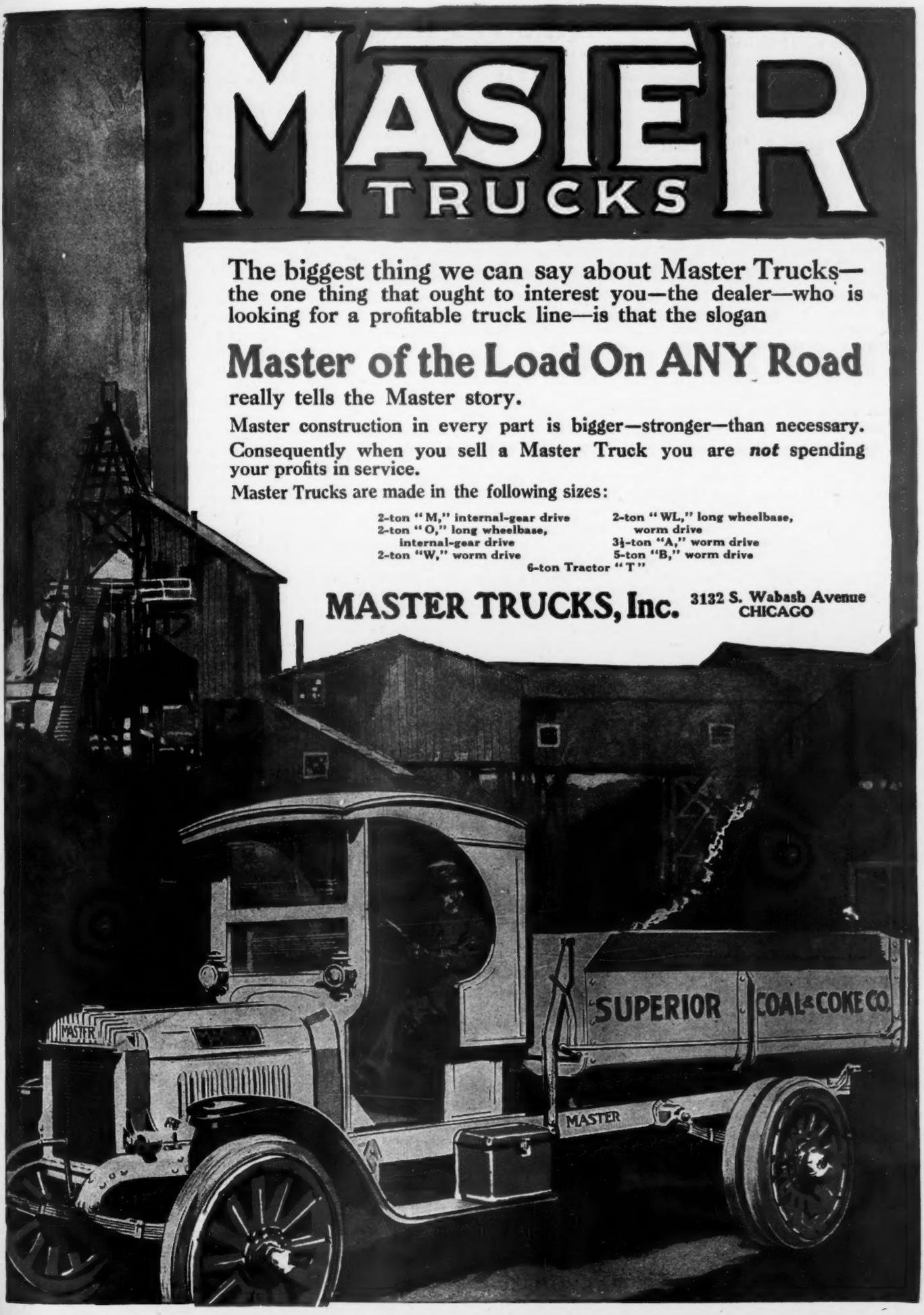
really tells the Master story.

Master construction in every part is bigger—stronger—than necessary. Consequently when you sell a Master Truck you are *not* spending your profits in service.

Master Trucks are made in the following sizes:

2-ton "M," internal-gear drive
2-ton "O," long wheelbase, internal-gear drive
2-ton "W," worm drive
2-ton "WL," long wheelbase, worm drive
3½-ton "A," worm drive
5-ton "B," worm drive
6-ton Tractor "T"

MASTER TRUCKS, Inc. 3132 S. Wabash Avenue CHICAGO



co-operate with the Government, still a bonus would be a profitable investment, for not only would fuel be conserved, but operating expenses would be greatly reduced by reason of a more intelligent use of the mechanism of the cars.

Ohio Business Men Plan to Solve Transportation Problem

Plans for an organization which would take upon itself the duty of aiding transportation by every means possible, furthering the rural express movement, assuring the success of the return loads bureaus and putting before the people the necessity of building good roads, were outlined at a meeting held under the auspices of the Highways Transportation Committee of Ohio.

A geographical division of the state was made, and comprises five districts. District No. 1 includes the Toledo area and nineteen counties in the northwestern section of the state. Royal Scott, secretary of the Willys-Overland Co., is chairman.

District No. 2, of which S. V. Norton, of the B. F. Goodrich Co., is chairman, comprises twenty-two counties in the northeastern part of the state.

District No. 3, I. N. Lightcap, district manager of the International Harvester Co., chairman, embraces the district around Columbus, and includes nineteen counties in the central part of Ohio.

District No. 4, with Cincinnati as headquarters, includes thirteen counties in southwestern Ohio. W. I. Calerdine, a representative of the Cincinnati Business Men's Organization, is chairman.

District No. 5 includes fifteen counties along the Ohio river, with Portsmouth as headquarters. Mark W. Selby, a shoe manufacturer, is chairman.

Five other members in each district will be named by the chairman of the district, to complete the district organization, and the counties will be organized later.

Oil Lands May be Leased for Development

If Senate Bill 2812 is enacted vast areas of land now undeveloped and thought to contain oil and gas may be leased to individuals who will have the right to explore them.

There are 6,524,834 acres of such land in the states of Arizona, California, Colorado, Louisiana, Montana, North Dakota, Utah and Wyoming, which were subject to exploration prior to September 27, 1909, but which were withdrawn at that time by the President. Some of these lands already contain producing oil wells, whose production was halted by the withdrawal.

Director Van H. Manning, of the Bureau of Mines, in a letter to the Senate, filed in answer to a request for his opinion on the matter, strongly recommended the passage of the bill as a means of alleviating the imminent shortage of gasoline.

Quality Plus Service Equals Success for Eldridge Buick Company

By WARREN EUGENE CRANE

"OUR business is increasing in spite of the war," said Mr. George Clifford Hill, northwest service manager for the Eldridge Buick Co., of Seattle and Spokane. "This condition is due to the fact that we have built up our tractor, truck and accessory departments to such a point that our gross income from them has completely offset any decrease in our pleasure car sales and made a fine increase in our total business.

"I believe that one of the main reasons for the success of our company is our active service department. Service includes the educating of our owners to attain such a degree of efficiency in running their cars and trucks that they do not have trouble. It is essential to any firm's success in selling motor vehicles.

The company's order blanks for the cars are made out in triplicate, with the original pink, the duplicate blue and the third copy white, with spaces on them for accompanying parts so that these can be checked over in the presence of the buyer when the car is delivered. The purchaser is required to sign the white triplicate upon delivery of the car, in which he subscribes to the following statement: "I hereby acknowledge receipt of and certify that this is a true and correct check of the above car, tools and extra equipment at time of delivery. And further, that I have received the necessary number of lessons and instruction, and I am fully competent to properly handle and care for my car."

As soon as the order is taken, the manager makes out a card notifying the new car department the date that the car or truck is promised. This branch of the business is vitally important, according to Mr. Hill. The duties of this department are, first, to check off every part of the car or truck as it arrives from the factory, and, second, to place it in excellent mechanical condition. (See accompanying cards designated New Truck and New Car.) The importance of this department should be recognized by the dealer, for it can save him several thousands of dollars a year. In many cases every year the average dealer has claims from owners that certain parts were missing when his truck came. If he has made no careful check when the machine arrived from the factory, he may have to stand the expense of a claim, which the factory could have been made to pay if the proper system had been followed in checking the car upon its arrival.

Another important work which the new car department performs is that of putting a truck in first-class mechanical condition before it leaves the salesroom. This includes oiling the timing gears, motor, clutch, transmission, universal joints, differential and crankcase; inspection of the oil in the motor, transmission and rear end for quality; a careful adjustment of radius rods, front wheel bearings, fan and belt and governor, as well as all other work necessary to place the car or truck in a perfect readiness for operation. After the machine is delivered, a service man is sent to help the new driver and to show him how to oil his car properly and to make minor adjustments. It is this care in keeping each customer satisfied that has been responsible in a large measure for the success of the company.

The accessory department of the Eldridge Buick Co. is located in a small triangular room, 30 ft. long by 12 ft. at its base. Nevertheless, it does one of the largest amounts of business of its kind on the Pacific coast. It is advantageously located at the entrance to the repair shop and garage, with the pleasure car salesroom in front of it and the company's tractor, trailer and truck salesroom at its rear, so that when the motorist either enters or departs, he is certain to see the attractive display of accessories in the clean, well-polished show cases. The company has made it a policy to send a service man to the owners of Buick cars, G. M. C. trucks and Samson tractors, at regular intervals, to perform services of a minor nature without charge and to make a written report of any accessory needs of the owner upon a special printed sheet provided for the purpose, which is designated to inform the sales manager whether the owner needs another new car, truck or equipment. After the head of the sales department has secured the necessary information and has filed it in his card system, he makes out cards for the manager of the accessory department, informing him of the needs of various owners. For example, if the sheet shows that the driver needs a bumper the latter sends a salesman to him at once to explain their importance in preventing accidents and repair bills. In this way the service department works in conjunction with all parts of the institution. The important part of its work in the sale of accessories is that it gives the salesman an idea of the customer's needs, so that he can concentrate his selling arguments upon one or more accessories instead of a large number of them without emphasis upon any one thing.

The accessory department is entirely surrounded by glass with clean show cases in which the various articles are arranged in an artistic and attractive fashion. A few plants and flowers are placed on the counters and everything is kept as neat as possible.

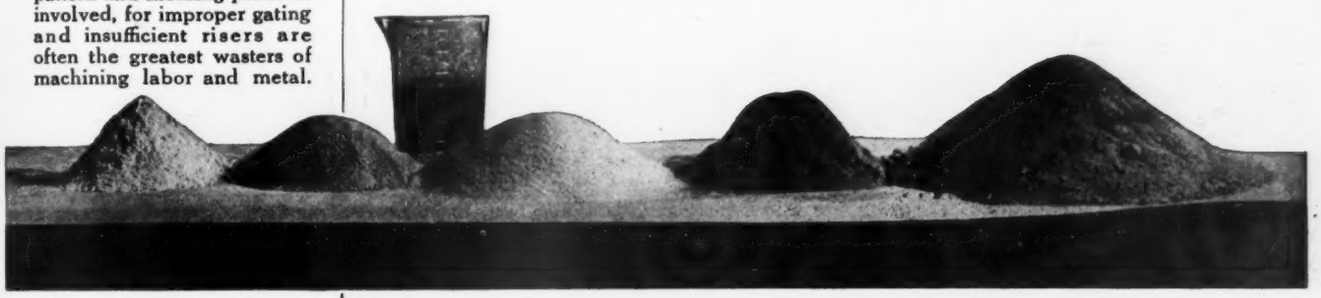
"We handle only the best of accessories, so that we can sell everything upon a money-back guarantee," said Mr. Kenneth A. McAlpin, manager of the department. "If anything is wrong, we replace it immediately, irrespective of the

The Sivyer Service of providing Electric Steel castings has for its objects the decrease of machining costs and the increase of wearing-quality and life. Both are attained by methods which result from long experience and begin with the design of the casting itself. When we find that a casting we are asked to furnish is of a design not consistent with good foundry practice, we study its function in the completed unit and offer the necessary suggestions to make it a really practicable casting job without affecting in any way its function and efficiency.

Secondly, Sivyer Service analyzes the functions of the casting and specifies the proper composition steel for the job; long experience with carbon and alloy steels has enabled us to reduce costs and increase quality remarkably for many different industries.

Thirdly, Sivyer Service makes a careful study of the pattern and molding problem involved, for improper gating and insufficient risers are often the greatest wasters of machining labor and metal.

SIVYER S CASTINGS



Fourthly, Sivyer Service analyzes carefully the proper annealing methods to be used and controls their proper application through unfailingly efficient equipment and men. In short, the Sivyer Service supervises every step necessary to secure unusually and unfailingly good castings of electric steel. It never relies on one factor alone, relies very little even on the natural freedom of electric steel from occluded gases and on its commonly recognized merit in resisting crystallization. It also depends but little on the inherent scientific accuracy of the electric furnace process. From casting-design to sand-blasting and tumbling, the fundamental superiority of Sivyer Steel is due to its men and metal. Their value is best proved by the fact that, although the production of steel castings is generally looked upon as a local one, the Sivyer market is national.

THE scientific mixing of sands and oil is a small but important part in keeping the surface of Sivyer Castings free from the pinholes and dirt which make machining difficult and costly.

It is still more important because it provides for that proper escape of gases from the cooling metal so essential—even with electric steel—in keeping the interior of the casting free from the imprisoned gases which, in ordinary castings, cause many losses in machining, and cause even more distressing failures in actual service.

SIVYER STEEL CASTING COMPANY, MILWAUKEE

SIVYER STEEL

factory's action in the matter. As a result of this policy, a large number of motorists come to us in preference to other dealers who cut prices.

"At the present time we are specializing on Hubodometers and other accessories for motor trucks. We pay a commission to the salesmen in all departments upon the extra accessories that they sell, and as a result of this policy we receive a large number of orders through them. I started this department alone about two years ago, and now I have seven people working with me. The success that has come to it is largely due to our policy of giving our customers excellent service."

The sales of the truck department has increased during the past few years as follows: 1915, 31 trucks; 1916, 157 trucks; 1917, 263 trucks and the first eight months of 1918, 600 trucks. This department has grown remarkably because of the policy of the management to give the owners such perfect service that they will urge all of their acquaintances to buy of the company. The driver of every truck is shown how to operate his machine and how to make minor adjustments and repairs. The company has been conducting a school in which its salesmen and employees have been instructed in the care and repair of a motor truck as well as the principles of selling. This is only one of the many progressive policies of the Eldridge Buick Co., which is building up an enormous business with branches at Spokane and Tacoma, and sub-agencies in all of the leading cities of the northwest.

The following inspiring motto hangs in a frame on the wall of each one of its departments: "The success of this organization depends upon the co-operation of its units."

Stick to the Job

Under this caption the "Curtis Fuselage," while directing its advice to the workman, hands out some very excellent and timely advice that may be well applied to those in the higher-up class.

"Your present job is your best opportunity. The fields farthest away may look greenest, but they are seldom the best. The future earning capacity of any man depends on how he makes himself valuable in his present job and the job itself as valuable as he is.

"A workman's future depends on the way the present work is done. If it is done carelessly, mechanically, half-heartedly, the man never gets ahead. But if he does his work with enthusiasm and energy, produces more at the task than any other chap in the shop, gives the company the benefit of a new idea once in a while, his present job becomes the stepping stone to another and better job. That is a result never possible if a man changes his job every time he hears of a few cents more here or a few cents more at another place.

"The man who sticks to the job is the only one who can say to the soldier when he returns from the front: 'I have done my bit.'"

A Clearing Station for Intra-City Transportation

At 419 Market St., Philadelphia, is maintained a sort of receiving station and clearing house for over twenty-five truck companies doing intra-city business out of Philadelphia.

The proprietor of this station is in no way connected with any of these truck companies, and does not himself own a truck, but merely runs this clearing house for the convenience and advantage of the co-operating companies.

The trucks run on regular schedule to points within a hundred mile radius. The heavy trucks required for this work cost money to run, and this money would be practically wasted were the heavy trucks made to deliver the merchandise brought in from surrounding territory. So co-operative arrangements were made with a number of hauling concerns in Philadelphia, that operate trucks of one, one and a half and two-ton capacity, to take care of the ultimate delivery to the consignee.

The advantages of this system are: Drivers of the intra-city trucks do not have to worry about delivery of cargoes. They merely back up to the receiving station and unload. The return load awaits them there also, so after loading they again take the road on regular schedule time and make the trip back with the return load. It saves much money on running costs and lengthens the life of the truck. As a loading and unloading crew is employed by the clearing house, it saves much extra labor on the part of the driver. Owing to the fact that the smaller truck owners are also used as "feeders," that is, to bring in the loads that the large trucks haul from city to city, they will not be forced out of business by competition with large concerns. Of course, each of these smaller companies are independent and operate on their own time, but the majority of them handle this line of work exclusively as there is plenty of it to do. Each of the smaller companies is assigned to a certain district, which when taken as a whole covers the entire city even to surrounding suburbs, but none of them is allowed to deliver out of his district.

When an intra-city truck arrives, its cargo is unloaded at once, and the addresses of the consignees noted. Each package or crate is then placed in a bin which contains the merchandise to be delivered in a certain district. This way when a truck backs up to the platform for city delivery the loaders merely clean out the bin for the district which that company handles. Of course, everything is arranged so that there is no confusion when a big truck comes in; everything is ready and it does not take much over twenty minutes for the big fellow to finish his business in Philadelphia and be on his way.

J. M. Firth is the man who is handling this extensive business, and the number of companies represented will attest to whether or not they consider it an all around saving for them.

What a Trade Acceptance *MEANS*

When you receive a statement with a Trade Acceptance attached, look at it from this standpoint:

It is not a note. It draws no interest. It is simply a formal agreement to do just what you intend doing: pay that bill when due.

If you wish to take your discount by paying cash, that's the best thing you can do,

But the next best thing—both for seller and buyer—is signing the Trade Acceptance.

Then, instead of an open account, the seller has bank paper which he can hold or negotiate; paying *his* bank for such accommodation if he wants it.

The buyer gains because he doesn't sign anything he does not know he owes.

Invoices and statements are watched more carefully. Bills are paid in their order. You are always conscious of just where you stand.

Dealers lay better credit foundations. They build on the seller's capital, for he can more safely extend a maximum credit line.

The man who buys from the wholesaler is the seller in turn to the consumer. He can—and should—use the Trade Acceptance with his own patrons.

Beware the open running account. Make definite clean-ups at short intervals with Trade Acceptances.

You'll quickly see their value to you. Extend the same support to the men from whom you buy.

Liquid credit from this source will enormously increase our country's trading capacity. It's a sensible—and patriotic—business aid. Help it along.

May be Gasoline Shortage Next Year

A report submitted recently to the Senate by Van H. Manning, Director of the Bureau of Mines, Department of the Interior, shows that production of gasoline is at present much behind consumption. Owing to the fact that the motoring season is nearing an end, the situation for this season is not serious. Since, however, gasoline will be required for war purposes during the coming winter, the supply that is usually stored will be used, and there will probably be a shortage next year. During August, the monthly consumption of gasoline, including exports, amounted to 9,500,000 barrels. Only 8,000,000 barrels were produced.

Steps must be taken, Director Manning said, to increase supplies of both gasoline and crude oil, and voluntary conservation must be practiced.

THE COMMERCIAL CAR JOURNAL

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WYMAN-GORDON CRANKSHAFTS

FOR the most exacting modern requirements—for Automobiles, Armored Cars, "Tanks," Aeroplanes, Trucks—wherever supreme quality and unerring workmanship is a prime essential, Wyman-Gordon Crankshafts are preferred.

We have been "prepared" for the present unexpected war requirements for nearly a third of a century.

The Wyman-Gordon guarantee has a history that recommends it to those who are suddenly confronted with the new, intricate forging problems that are the outgrowth of war necessities.

Let us serve you.

Wyman-Gordon Company
Worcester, Massachusetts
GUARANTEED FORGINGS